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ORIGINAL LECTURES.

TUMORS OF THE FEMALE BREAST.

A Clinical Lecture

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THE extreme frequency of tumors of the kind that I intend presently to show you renders the subject one of great interest, not only to the surgeon, but also to the practitioner, who usually is responsible for the early recognition of the growth, and upon whose advice, if he does not care to operate himself, the patient seeks the aid of the surgeon. Some preliminary remarks upon the anatomy of the gland may aid us in systematizing the general subject of the diagnosis of these growths. The mammæ are compound racemose glands, made up of fifteen or twenty lobes, each with its principal excretory duct, which empties into a sac at the base of the nipple, and contracts again into a tube which is continued to and ends upon the summit of the nipple. Each of these lobes is made up of a number of lobules, each lobule in its turn being composed of a number of gland acini or vesicles held together by connective tissue. The mammæ rest upon the great pectoral muscles to the sheaths of which they are loosely connected by delicate fibrous tissue. They are richly supplied with blood and with nerves, are surrounded by an adipose layer, and are covered anteriorly by skin.

For clinical purposes, we may regard the gland as made up essentially of connective tissue, and of an epithelial or secreting structure. Simplifying the anatomy in this way, we may also, to a large extent, simplify the pathology, following the excellent classification of Mr. Mitchell Banks. By doing this, we can divide the new growths which infect the mammæ, as follows:

First. Tumors derived from connective tissue, and representing it in a fully developed state. These neoplasms are innocent and include the varieties known as lipoma, fibroma, myxoma, and chondroma.

Second. Tumors derived from hypertrophy of highly organized structures—neuroma and angeioma.

Third. Tumors derived from the epithelial or secreting structure and maintaining the general type of the latter. These tumors are either innocent or are on the border-line between benign and malignant disease. They include the adenomata, the adeno-fibromata, the adeno-cystomata, and the adeno-sarcomata.

Fourth. Tumors, derived from the connective tissue, but instead of presenting it in a fully developed or mature state, having it in an embryonic or immature condition. These neoplasms are malignant and include the large class of sarcomata.

Fifth. Tumors derived from the epithelial or secreting structures, but with those elements or structures atypical. These are, of course, malignant, and include the class of carcinomata.

Lipomata of the breast are exceedingly infrequent The growth is situated usually between the skin of the breast and the breast itself, consisting of a superficial, slowly growing mass, having the characteristic doughy feeling and becoming dimpled upon the surface if the skin over it is compressed. It is, of course, perfectly innocent and can with safety be enucleated.

The *fibromata* occur with somewhat greater frequency, and are among the growths most often mistaken for carcinomata. The important points of differential diagnosis are as follows: Fibromata rarely exceed in size the dimensions of a walnut, and are sometimes no larger than a hickory-nut; they appear early in life—may occur, indeed, shortly after puberty; they have no tendency to infiltrate the skin or the surrounding parts; they grow very slowly; pain is not common; there is no secondary involvement of the lymph glands; they never affect the general health (except as they may influence nutrition through the fear of the patient that she has cancerous disease); if removed, they rarely or never recur. In other words, they are innocent growths, which are to be distinguished by their occurrence at an early age and by the absence of the characteristic symptoms of carcinoma, which is the neoplasm they most closely resemble.

The *myxomata* begin in the connective tissue uniting the various ducts and lobules of the gland, which tissue tends to revert to its original condition, and to become transformed into a jelly-like, translucent substance. They grow to a moderate size, affect the skin sometimes as does carcinoma, and usually cannot be diagnosticated with absolute certainty without an exploratory puncture. A tendency to recurrence is said to have been observed in these growths, and it is, therefore, advised by high authorities, that when the diagnosis of myxoma has been assured the entire gland should be removed.

Chondromata, *angeiomata*, and *neuromata* have the well-known characters of these growths, when they occur in the mammary gland, as when they occur elsewhere. They may easily, therefore, be recognized, but are so exceedingly uncommon, as to be classed rather as surgical curiosities, than as growths likely to fall under the attention of the general practitioner.

The third class is a complex one and presents the greatest difficulties both as to pathology and clinical differentiation. Running over it rapidly we may say that pure *adenomata* are of the most extreme rarity. One might practise surgery for many years without meeting with a growth of this character. They are composed of fully developed glandular tissue. They have two peculiarities which make them more serious than might be supposed from the place which they occupy in the pathological series, viz., they are apt to recur after removal and they tend to become transformed into carcinoma, by breaking-down of the basement membrane of the vesicles permitting an infiltration of epithelial elements into the surrounding connective tissue. Clini-

cally they are small, hard, painless, nodulated tumors, freely movable, of slow growth, and apt to affect middle-aged married women who have suckled a number of children. The *adeno-fibromata* are much more common, and, indeed, are said to occur with more frequency than any other non-malignant tumor of the breast. They appear at an earlier period of life than does carcinoma, are hard, nodular, movable tumors, and are altogether without the characteristic signs of malignancy. They cannot be distinguished clinically from the pure fibromata. The *adeno-cystomata* are growths of greater or less density, often attaining a large size, and consisting at first of numerous walled cavities into which there is apt to occur an intracystic growth, which often quite fills them. They grow slowly, reach a large size, affect middle-aged women, and sometimes involve the skin, not by infiltration but by pressure.

The *adeno-sarcomata* are distinctly malignant, and differ but little from the pure sarcomata, the diagnosis usually depending upon the microscopic examination after removal.

Turning now to the characteristics of the tumors which belong to our fourth class, or those of *sarcomata*, it may be said that when we meet with a painless, elastic or semi-fluctuating tumor, having a tendency to infiltrate, to grow steadily and rapidly without becoming adherent to the skin or the chest-wall, which occurs in a person from twenty-five to thirty-five years of age, which is not accompanied by any enlargement of the axillary or other lymphatics, and in which the veins are enlarged over the surface of the growth, the diagnosis of sarcoma may be considered to be reasonably well assured.

The most interesting and important class of cases remains to be described, viz., *the carcinomata*, constituting about eighty per cent. of all breast growths. Occurring with enormous frequency and attended with almost unvarying fatality, these tumors are certain to come under the observation of every practitioner. Their well-known and easily recognized peculiarities may be summed up as follows: 1. The patient is past middle age, usually past the climacteric. The disease is associated with the involution, the disuse and atrophy of the gland, not with its evolution. 2. The tumor contracts adhesions as it grows, drawing upon the connective tissue about it (causing puckering of the skin), and upon the milk ducts (causing retraction of the nipple). 3. It infiltrates the surrounding structures, the skin above and the muscles beneath. 4. It spreads to distant parts early in its development by means of the lymphatics, the nearest glands becoming indurated and progressively enlarged.

These are the four characteristic signs of the variety of cancer known as scirrhus, the encephaloid differing in consistency and size, being usually much softer and larger. Other valuable symptoms are shooting pains, general cachexia, ulceration, chronic eczema or nodular growths in the skin, or sero-sanguinolent discharge from the nipple.

I have now run over the main diagnostic points which will enable you to recognize and classify satisfactorily the various neoplasms of the breast which may present themselves to you. The inflammatory conditions of the breast which may simulate new growths are chiefly *chronic induration of a lobule* and *cold encysted abscess*, both of which are apt to be associated with lactation. The former may sometimes be recognized by its ill-defined margins, its tenderness on pressure, and by the fact that several lobules or even both breasts are not infrequently affected. The latter, in addition to these symptoms, is often accompanied by some œdema of the skin.

Glandular or *retention cysts*, *serous cysts*, and *hydatid cysts* may be known by their fluctuation, but are sometimes so tense as to be of stony hardness. An aspirating needle will reveal the character of the growth, the fluid in the retention cysts being usually dark and bloody, in serous cysts clear and albuminous. The presence of hooklets would, of course, establish the diagnosis of hydatids.

Supra- and *sub-mammary abscess* and *galactocele*, or *milk cyst*, have an almost constant association with pregnancy or lactation, sometimes with a recent traumatism superadded, or with the sudden cessation of discharge from the nipple. The diagnosis is usually not difficult, and is based upon the history and the presence of inflammatory or retention symptoms.

You will find that your difficulties in diagnosis among all the various growths and enlargements affecting the female breast will be greatest with the tumors of small size, seen soon after their appearance. There is, of course, a period in the life-history of each tumor, however serious it may be, when it is small and movable and painless, when surrounding structures and neighboring glands are not involved, and when your opinion will perforce be more largely influenced by the age of the patient, her personal and family history, the presence or absence of lactation, etc., than by the physical characteristics of the growth itself. If, on the contrary, one or two years have elapsed since its appearance, and it still retains the above-mentioned features, it is safe to say that there is but little likelihood of malignancy.

When, as in the case of the patient whom I now show you, a young woman, aged twenty-five, presents herself with a small, painless, solid growth stationary for a year, freely movable, and with no symptoms of malignancy, what is your duty toward her? You may decide that there is a high degree of probability that you are dealing with a fibroma, or an adeno-fibroma, which would perhaps be harmless if left undisturbed, but there are other and important factors to be considered. You will constantly find in such cases that the patient is profoundly worried and distressed, that her pleasure is destroyed, her sleep broken, her nutrition affected by the presence of this growth. She is certain to have known, or, at least, to have known of, some one who has died of a breast cancer which in the beginning more or less closely resembled the swelling in her own breast. These constitute in themselves, in my opinion, good reasons for operation in the large majority of such cases. Then, too, we must, as I have said, frankly admit, that in the early stage of all growths there will be very considerable doubt in the mind of even the most experienced surgeon as to the ultimate outcome of any particular case. While the age of the patient, the absence of any family history of cancer and of any sign of that disease, may make its later appearance extremely improbable, it cannot be denied that there are many instances in which a too favorable opinion given at first has to be modified as the

disease progresses, and in these cases both patient and surgeon are apt to feel that possibly a chance has been lost of which advantage might have been taken. Nor should the undoubted possibility of the transformation of an innocent into a recurrent and truly malignant growth be lost sight of.

For these reasons it is my custom to advise operation in such cases whenever the general health of the patient is reasonably good. It is not necessary at this time to sacrifice the entire gland. We are dealing with a growth which probably belongs to one of our first two classes, or to one of the innocent varieties included in our third class, and has no tendency to return. We will probably find it encapsuled and will recognize that there has been no infiltration of surrounding structures. We can, therefore, spare the patient the unnecessary mutilation of an excision of the entire mamma. A careful microscopical examination shall at once be made, and if then there prove to be any distinct tendency to malignancy, a second operation, having for its object the removal of the whole gland and the cleaning out of the axilla, will be recommended. This should be understood by the patient, who will ordinarily, as in this case, willingly acquiesce, appreciating your desire to perform the least serious operation that will make her safe. The method of withdrawing a portion of the growth by an augur-like arrangement, recently suggested, has not been found satisfactory, as the very growths in which it would be of the most use, viz., those on the border-line between innocency and malignancy, are just those which present the greatest difficulties of microscopical diagnosis, and in which more complete sections are, therefore, necessary.

Under our present antiseptic methods, union by first intention ought to be the almost invariable rule in all these cases, and the operation for excision of a movable growth of moderate size should be without shock, pain, or risk of any sort.[1]

In approaching the second case which I have to present to you we find a woman, past middle life, with a tumor having all the characteristics of carcinoma, of moderate size, the skin slightly infiltrated and the axillary glands somewhat involved. In such cases, in all the undoubtedly malignant tumors—and especially in dealing with the carcinomata—the duty of the surgeon is, to my mind, perfectly clear. I have not now the time to give you my reasons in detail for all the opinions I am expressing to you, but must ask you to believe that they are founded on an experience which has been exceptionally large, thanks to my relations with Professor Agnew. I have had with him, in addition to my own experience, the opportunity of assisting at the operations upon and participating in the after-treatment of what may fairly be called an enormous number of these cases, and have watched their progress from first to last. The diagnosis of malignancy having been established, there are always certain questions in regard to prognosis which the surgeon will at once have to answer, either to the patient or her friends—and there are certain facts which, with or without questioning, it is his duty to lay before some intelligent member of the family.

In the first place, it should be clearly understood that the disease is, with or without operation, almost necessarily a fatal one. A careful study of recorded cases, in which a claim of cure has been made, will show that in many the diagnosis was not confirmed by microscopical examination, and that in more the report of "cure" was made at a period of twelve, eighteen, or twenty-four months after the operation. It is certainly unsafe in giving your prognosis to do more than express the hope that the case in question may prove to be one of the extremely rare ones in which the patient enjoys good health for many years—sometimes long enough to die of something else. This explanation will usually be followed by inquiries as to the probable duration of life, if the patient is not operated upon. In reply to this, it may be said, that according to the best authorities, the average length of life in cases of scirrhus, dating from the time of its first discovery, is about two years and a half.

Sibley places this period at a little over thirty-two months, Baker at forty-three months, and others at different dates, the time which I have mentioned—namely, two years and a half—being, however, about the average. Agnew says the shortest period at which he has seen death result from untreated carcinoma is six months, and the longest nine years. If the cancer is encephaloid, it is likely to progress more rapidly and to bring about an earlier fatal termination, the average duration of life in these cases being under a year (Jacobson). The next question will probably be: What is the probable duration of life after such an operation as is contemplated? To this it may be replied, that if the case is recognized early and the operation is promptly assented to, it may be said to increase the chance of life by at least a year, possibly by a year and a half, bringing it up to from three and a half to four years. If the discovery of the disease and the operation are later, the result will not be so good, the average date of recurrence after such late operations being from ten months to a year and a half.

As to the risks of the operation itself, which must also be considered, if the surgeon is familiar with the antiseptic method, and if he has had any experience in operating upon this class of cases, it is safe to assure the patient, if she be in reasonably good general condition, that there is almost no risk to life involved in removal of a mamma.

After having, as I have said, assisted Dr. Agnew in a very great many operations of this kind, and after having operated upon a number myself, the total running up into the hundreds, I can safely say that there has not been, in either his practice or mine for some years, a single death as a result of an operation for carcinoma of the breast. Indeed, with perhaps one or two exceptions, there have not been for years any conditions subsequent to operation which even gave rise to a moment's anxiety as to the life of the patient. This is not an exaggerated statement, but is one which has only been made possible by the rigid application of antiseptic methods which not only brought the mortality down to *nil*, but immediately reduced the average time of healing, even after the largest wounds, from three or four weeks to ten or twelve days.

There are, of course, cases in which it will not be

[1] The operation was performed in the usual way, the growth being removed by dissection from the neighboring structures. It was enclosed in a firm capsule, and proved to be an adeno-fibroma with a great excess of the fibrous element—almost a pure fibroma. No drainage was used. The wound healed in six days.

proper to recommend operation. I would say, in a general way, that those are cases in which the extreme age of the patient, or the presence of some intercurrent disease, or the existence of some bad habit, such as alcoholism, or, preëmine the involvement of such an extensive cutaneous and glandular area as absolutely to preclude the possibility of the entire removal of all the glands, as well as of the tumor itself, should constitute powerful arguments against operation.

On the other hand, even great involvement of the glands should not be considered as constituting invariably an insuperable bar to operation. There are reasons which may make operations justifiable, even in this class of cases, as for example; where ulceration and fungous growths have been extensive and the patient is seriously annoyed by offensive discharges, or weakened by frequent bleeding, or, in other cases, where the pain is so great as to make life unendurable.

In such instances, it is quite proper for the surgeon to operate with a clear understanding that the operation is palliative in its character, as it is, unfortunately, in nearly all cases.

Of course, the surgeon would not think of operating in the presence of carcinoma elsewhere, as in some of the viscera.

It should be remembered, however, among the arguments in favor of operation that visceral cancer is painless, as a rule, and that if internal recurrence takes place the patient will at least escape the distressing accompaniments of death by exhaustion, hemorrhage, or septicæmia, as in cases of neglected and ulcerating carcinoma.

Having advised operation, then, in carcinoma or in any other malignant tumor of the breast, what is the best method of operative procedure? I will not detain you with the details of the antiseptic methods employed; they are already familiar to you, and consist in the most scrupulous preparation of the skin of the patient, the hands of the operator, the instruments, dressings, ligatures, sutures, etc. All that I desire to-day to call your attention to is the method which I shall presently employ, and which, as I say, has been used with much success by Dr. Agnew, and in a smaller number of cases by myself. The chief question at issue among surgeons, so far as I know, in regard to the operation itself, is chiefly as to its extent—*i. e.*, as to the necessity in every case for the removal of the entire breast and the chain of axillary glands. A minor question, also under discussion, refers to the amount of skin removed. Is it, or is it not, necessary in removing the breast, to take with it all the skin which covers it—in other words, to perform the so-called "dinner-plate" operation? In reply to these questions, I would say that, first, as to the removal of the entire breast, there seems to me every reason for advocating it. Mr. Butlin, in his recent excellent work upon the *Operative Surgery of Malignant Diseases*, has brought forward what seem to him good reasons for believing this to be, both theoretically and practically, unsound; but his arguments are not convincing to my mind. The tendency of malignant growths to extend rapidly far beyond the possibility of recognition by not only the eye, or the touch, but even by the microscope, is so well known that it seems the obvious duty of the surgeon to remove every particle of such tissues in the immediate vicinity of the growth as can be taken away without undue mutilation or deformity, and with a reasonable degree of safety to the patient. I, therefore, would strongly recommend you, in cases of this kind, not to rest satisfied with anything less than the removal of the entire breast, of every portion of suspected skin, and of all the lymphatic glands of the axilla, whether they are or are not perceptibly enlarged. The severity of the operation is not materially increased in this way, while there can be little doubt that life is prolonged, and possibly the best chance is given for avoidance of recurrence, although it must always be recognized and admitted that that chance is an exceedingly small one.

As to the removal of skin, while every portion which is in the least adherent, or puckered, or even doubtful in appearance, should not only be removed, but should be given a wide berth, it seems scarcely justifiable in the light of our present statistics to subject every woman who undergoes this operation to the prolonged and tedious experience involved in the healing of an open wound of large size. It undoubtedly also increases the pain, the discomfort, and the risk of convalescence, and I have yet to learn that its indiscriminate employment brings with it any compensatory immunity from recurrence. The burden of proof rests with its advocates.

I will now proceed with the operation best suited to such cases as the present one. An elliptical incision is made, including the nipple and all the affected portion of skin, and a broad area on either side of it. The incisions extend from the sternum on the affected side to a point just below the axillary border of the pectoralis major.

The lower flap is dissected up rapidly, the dissection being carried well beyond the limits of the breast. The connective tissue beyond the breast limits, and the fascia overlying the pectoralis muscle, being recognized before the dissection stops, the flap is reverted, a few large bleeding vessels are picked up by hæmostatic forceps, and the space beneath the flaps is filled with antiseptic gauze or with towels wrung out from a hot bichloride solution. A similar flap is then formed on the upper semi-circumference of the gland.

After this, the gland having been loosened well around its border, and especially at the part toward the sternum, the operator seizes it with the hand, raising it by forcible traction made in the direction of the fibres of the pectoral muscle, to which it is often adherent. If this be the case, he will often remove with the tumor a portion of the attached fascia and muscle. This, however, is not to be regarded as a disadvantage, as such portions of tissue will probably be implicated and might escape the knife. The points of attachment are also those to which especial attention should be paid, all doubtful portions of the great pectoral being freely removed. The axillary cavity is entered by an incision through the fascia, near its anterior border, and the glands removed by blunt dissection, chiefly with the finger.

The wound is dressed with the same care observed in all the other steps of the operation. The rubber drainage-tubes are removed on the second or third day.

[Union by first intention on the eighth day was obtained. The highest temperature was 99.3°.]

ORIGINAL ARTICLES.

TREATMENT OF TUBERCULOSIS.

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Prophylaxis.—In order to employ prophylactic measures most successfully, it is necessary to have full and accurate knowledge of the circumstances or conditions in which the disease, which we endeavor to prevent, originates. Therefore, before we consider the measures which are designed to prevent tuberculosis, we will briefly relate the following authenticated instances, which show the different modes in which this fatal malady is contracted.

H. Reich states that in an inland town in Europe, a midwife with advanced phthisis, was in the habit of blowing into the mouths of newly born infants, and ten of these infants died of tuberculosis, apparently contracted in this manner. At the same time the infants in the practice of a healthy midwife in the same town remained well (*Berlin. klinische Wochen.*, 1878). Dr. E. I. Kempf relates the following equally striking instance of infection (*Louisville Medical News*, March 22, 1884). In the fall of 1880, a girl of eighteen years, whose brother had died of consumption, was found to have tubercles at the apices of both lungs. She belonged to a sisterhood, and slept in the general dormitory with the other sisters. In four months nine of her companions began to cough, and were found to have tubercles. No one of the sisterhood had previously had disease of this kind. Dr. A. Ollivier, physician to l'Hôpital des Enfants Malades, Paris, states that a family previously in robust health occupied two small rooms opening into a narrow court. The parents, a young son, and the baby, slept in one of the rooms. An older son, who had been living elsewhere contracted phthisis, returned home, and slept in the same apartment. He died January 16, 1883. His mother, who was constantly at his bedside began to cough, emaciated, and died of the same disease in the following May. Seven days after the death of the mother, her infant had tubercular meningitis, of which it perished, and a little later the older child who occupied the same apartment, sickened and died like the mother. The father only remained of those who occupied the small room, and his immunity was probably due to the fact that he was most of the time in the open air (*Etudes d'Hygiène Publique*, 1886). The fact has long been noticed that wives in their close ministrations on phthisical husbands, occupying not only the same rooms, but the same beds, and using the same towels, are very liable to contract this disease. Moreover, I have noticed in the wards of phthisical patients in Charity Hospital and elsewhere, that young infants of tubercular mothers usually contract phthisis, which is likely to be general, and not infrequently they die before the mothers. Formerly it was supposed that tuberculosis was transmitted to such infants by inheritance, but now that its infectiousness is known, it seems probable that the transmission of this disease from the mother to her infant is post-natal and due to her intimate relations with it.

The recent experiments of Cornet (*Wiener med. Wochen.*, June 2, 1888) show that the walls and furniture of a room occupied by a phthisical patient are liable to become infected by the lodgement of the tubercle bacilli upon them, so that a healthy person occupying this apartment, simultaneously or subsequently, is in danger of contracting this disease. He rubbed the walls and bedsteads in the ward occupied by phthisical patients with disinfected sponges, avoiding such surfaces as might be infected by the hands and sputum of patients. Ninety-four animals were inoculated with these sponges and 52 of them died from causes apparently different from tuberculosis. The remaining 44 were killed after forty days, and 20 of them had tubercles. In a second experiment, 168 animals were inoculated with the dust from the walls of an infected apartment, and 90 of them died soon afterward, of which 34 were tuberculous. Of 311 animals inoculated in all, 167 died in consequence of the operation, and of these 57 were found to be tubercular and 85 without tubercles. Control experiments with dust from rooms not occupied by tubercular patients, and from the crowded streets, gave a negative result as regards the development of tuberculosis.

The important observation has been made that the dust is not infectious in rooms occupied by tubercular patients who have uniformly expectorated into cups or spittoons, which have been emptied and disinfected at proper intervals. Several observers state that their observations clearly establish the fact that neither the tubercle bacilli nor spores are exhaled in the breath of the phthisical patient. On account of the weight of these organisms it is said that they cannot be detached from the sputum, or the moist surface of the respiratory organs, so as to infect the breath in ordinary respiration. But this is a subject which requires further investigation. Certain it is that particles of dried sputum loaded with the bacilli received on towels, handkerchiefs, or other surfaces, are liable to be wafted by currents of air so that those who minister to a patient are in constant danger of contracting the disease by inhaling these particles if proper precautionary measures are not employed.

Another and probably a common mode in which the tubercle bacillus enters the system, is in the ingesta, like the bacillus typhosus of typhoid fever.

Tuberculosis is a common disease in cattle, and recent observations and experiments show that it has probably in numerous instances been caused in man by the use of milk from tubercular cows. Gerlach fed such milk to young animals and produced in them tuberculosis, manifested primarily along the alimentary tract and in the adjacent lymphatic glands. Alibert fed a litter of young pigs with the milk from a tuberculous cow, and all of them died from tuberculosis. Tubercles frequently occur in the udders of tuberculous cows, and by their presence in the tissues which secrete the milk, the milk itself is infected. Nocard discovered the tubercle bacillus in eleven examinations of the milk from tubercular cows. In the examination of 600 cows in the Edinburgh dairies, 37 were found with inflamed udders, and the milk obtained from 6 of these was found to contain the tubercle bacilli, showing that in at least these 6 cases the udders were the seat of tubercles (*Annual of the Universal Medical Sciences*, vol. i., 1889). Klebs, Bollinger, Koch, Stein, Toussaint, and Chauveau may be mentioned among those who state that milk from the tubercular udder of the cow, if given in a raw state and sufficiently long, will cause tuberculosis.

The experiments of Cornil throw light on the manner in which tuberculosis is caused by the use of infected food. He ascertained that cultures of the tubercle bacillus, introduced into the intestine of an animal, penetrated the mucous surface very quickly. In four days after introducing the culture into the œsophagus of the guinea-pig, he found submucous lesions of a tubercular nature, and even tubercular mesenteric glands without appreciable injury of the epithelial cells where the culture was introduced. Cagny relates the following instructive instance, showing how the ingesta may be the vehicle of the tubercle bacillus in animals. A man having tuberculosis, was in the habit, while walking in his garden, of expectorating on the ground. He was closely followed by chickens that swallowed his sputum with avidity. In a few weeks nearly all the chickens were found to be tuberculous, their livers especially being affected, so that it was necessary to destroy the whole brood (*La Semaine Méd.*, August 1, 1888).

Not only the milk, but the flesh of a tuberculous animal may communicate tuberculosis. At the meeting of the Congress for the Study of Tuberculosis, held in Paris, July, 1888, all the members present regarded the use of the flesh, and especially the milk, of tuberculous animal as dangerous, and recommended their "complete seizure." Jorissenne states that four cows in every one hundred are tuberculous, and in one shed of twenty cows the milk drawn from tuberculous teats presented a "prodigious number of bacilli." In Montauban during seven years, 4.07 per mille of the cattle that were slaughtered were tuberculous, and T. Spillman found 30 to 40 per cent. of the stall-fed cows of Nancy tubercular. In addition to cattle, hogs and the various domestic feathered animals are liable to tuberculosis, but the percentage of those that are affected varies in different localities, the number being greatest in animals that are stabled or penned. Tuberculosis is so common in the domestic animals that measures designed to protect families who obtain so large a proportion of their food from this source are urgently required. The possibility of the transmission of tuberculosis by vaccination has attracted considerable attention in Europe, and was discussed at the Parisian Congress held in July, 1888. To guard against this transmission, the animals furnishing the virus are, in several of the vaccine establishments, killed before the points are used, and these points are rejected if the organs exhibit evidence of disease. Still it is believed that the pure vaccine lymph, even from a tubercular animal, does not contain the bacillus, but the point may contain it if there be an admixture of blood.

Tuberculosis is most prevalent where people congregate, as in schools, factories, prisons, the city tenement houses, and least prevalent where people lead isolated outdoor lives, as the agriculturists. The effect of confinement was clearly shown by the experiments of Trudeau. He inoculated two sets of rabbits with tubercular matter: the one set, confined in a damp, dark subterranean place, were found when killed to be extensively affected with tuberculosis, while the other set, allowed to run free in the sunlight, were but slightly tuberculous (THE MEDICAL NEWS, October 27, 1888). Ziemssen says that fifty per cent. of the Sisters of Charity in the Munich Hospital die of tuberculosis. The robust and rosy-cheeked candidates of the order arrive from the country, but in the confinement of the hospital their health gradually fails, and one after another contracts tuberculosis and dies. So great is the difference in result between life in the open air and in confinement.

Again, some individuals are especially liable to contract tuberculosis on account of certain local ailments. Caseous substance occurring in any part of the system affords a nidus in which the tubercle bacillus, if it obtain a lodgement, is readily propagated. Caseation occurs most frequently in the inflammations of scrofulous children, and hence scrofula has long been regarded as sustaining an intimate causal relation to tuberculosis Strumous children with cheesy cervical glands, cheesy bronchial, axillary, or mesenteric glands, or cheesy pneumonia, usually die of tuberculosis. If exposed to cases of tuberculosis they are in imminent danger of contracting this disease. The tubercle bacillus

may also gain admittance into the system through sores or wounds of the skin or mucous membrane. Perhaps the most striking examples bearing on this point were collated by Dr. Meyer and published in the *N. Y. Med. Presse*, June, 1887. In 18 of 28 cases, the Jewish rite of circumcision had been performed, in which the operator frequently sucks the wound with his lips. In these cases of tuberculosis following circumcision, ten or fourteen days after the operation the inguinal glands were observed to be swollen, indicating commencing infection of the system. It therefore behooves one having an open sore upon the skin, or a lesion upon the mucous surface, as in catarrh of the Schneiderian or bronchial surface, to avoid close intimacy with a tubercular patient.

Prophylactic Measures.—Since tuberculosis originates in so many different ways, measures designed to prevent this disease have a wide range. Precautionary measures are especially required in the nursing of the tuberculous patient. His sputum should always be received in a cup or spittoon containing a disinfectant liquid, and this vessel when emptied should be cleansed with boiling water or a disinfectant. Sputum should never be received upon a handkerchief or cloth and allowed to dry. Towels and handkerchiefs should be moist when used, and immediately afterward placed in boiling water or a disinfectant. We have seen what disastrous results occur from the dried sputum. Whatever may be said of the innocuousness of the breath of the phthisical patient based on the supposition that the tubercle bacillus has so great a specific gravity in its moist state that it is not exhaled in ordinary respiration, nevertheless the sad experience of the midwife related at the commencement of this paper should teach us to avoid his breath, so far as is compatible with proper ministrations to him. The floors and walls of his apartment should occasionally be washed with a disinfectant liquid, and the bedding, clothing, rugs and mats should never be shaken in the apartment, but outside the house. Ventilation of the apartment should be allowed to the full extent compatible with the safety of the patient. The remedies which we will hereafter recommend in the treatment of the patient, are destructive to the bacillus, and, therefore, whenever employed have also a prophylactic action.

No physician who has read in the medical journals of the last decade the many reports of cases in which milk has been the vehicle of pathogenic organisms has failed to see the urgent need of obtaining this indispensable article from healthy dairies. Families should insist on the inspection at regular intervals of the dairies that furnish them milk, and the exclusion of such animals as exhibit the least sickness. Moreover, no one with a chronic cough should be employed in milking or in the subsequent handling of the milk But with the utmost endeavor, on the part of families living at a distance, to obtain milk free from impurities, no one can state positively that it will not sooner or later contain pathogenic organisms, as those of diphtheria, scarlet fever, typhoid fever, or tuberculosis, so many and unsuspected are the modes of infection. Fortunately, heat at or near the boiling point is an effectual sterilizing agent, and it can be employed without diminishing the nutritive properties of milk or rendering it more indigestible. I do not forget the interesting experiments which have been made to determine the tenacity of life of the tubercle bacillus, when subjected to heat and cold. In experiments made it is said to outlive most of the microbes associated with it. Schill and Fischer state that dried and pulverized tubercular matter not subjected to treatment retains its virulence six months, and Pietro states that tubercular sputum well-dried and maintained at 77°, retains its virulence nine or ten months. But what concerns us most at present is the remarkable statement made by Max Voelsch (*Centralb. für klin. Med.*, June 30, 1888), that twice boiling does not entirely destroy the virulence of the tubercle bacillus. I habitually direct that the morning supply of milk designed for children shall be immediately placed in a steamer and subjected, two hours, to a temperature of 190° to 200°. No pathogenic microbe can probably survive if subjected so long a time to so high a degree of heat. The flesh of the tubercular animal, which it is believed is often purchased by unsuspecting families, evidently requires similar treatment—that is, thorough cooking—in order to be rendered innocuous. A competent meat inspector should be employed at each slaughter-house, and all di eased meats be rejected, but in the present management of the meat market, the only sure method of preventing the presence of living and active bacilli in the meat foods appears to be by thorough cooking.

Outdoor life, residence in elevated localities, where the air is not only pure but rarefied, the occupancy of sunlit and well-ventilated rooms, the avoidance of rooms or localities where the air is contaminated by the preseuce of others, as in crowded schools or factories, or by unwholesome occupations, and all measures which promote the appetite and general health, are prophylactic, as they are also to a certain extent curative, of tuberculosis. It is evident from what has been stated above, that caseous substance occurring in any part of the system, inasmuch as it sustains a close causal relation to tuberculosis, should, if practicable, be removed by surgical measures. Moreover, since cheesy degeneration results for the most part from

inflammations occurring in the scrofulous, measures designed to prevent or cure such inflammations, or to cure scrofula, have a prophylactic effect as regards tuberculosis. The strumous child should be watched with great care, and such measures be employed as are calculated to invigorate his system. He should receive anti-strumous treatment, both hygienic and medicinal. Especially should glandular hyperplasia and the products of inflammation, whether occurring in the lungs or elsewhere, be, if possible, removed before caseation occurs. For this purpose the old remedies, like cod-liver oil and syrup of the iodide of iron, given internally, and for hyperplasia of the subcutaneous glands, ointments like iodide of potassium in lanolin, may be advantageously employed. Finally, one having an abrasion or sore of the cutaneous or mucous surface, or catarrh of the air passages, as indicated by discharge from the nostrils, sore throat, or a cough, should not attend as nurse or otherwise a phthisical patient until his local ailment is cured, since the tubercle bacillus is believed to enter the system more readily through a diseased than a healthy surface. We will next consider the treatment of tuberculosis, which is undergoing a marked change since the microbic nature of the disease has been discovered, the antiseptic and germicide remedies coming more and more into use, so that there is reason to think that, at a time not distant, this malady, instead of causing one-seventh part of the deaths of the human race, will be somewhat less frequent and fatal.

(*To be continued.*)

ON THE TREATMENT OF SCARLET FEVER BY CHLORAL HYDRATE.

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IT is my wish to bring to the notice of the profession an efficient method of treating scarlet fever not hitherto described. My account of this method is based upon a personal experience now extending over seven years. It therefore relates to cases and epidemics of every degree of intensity.

The most cursory review of the history of the treatment of this disease enables us to divide it, in common with that of the other acute infectious diseases, into three periods:

First, a period in which treatment was based upon the idea of depletion by means of general or local bloodletting, emetics, purgatives, and diaphoretics. It is needless to say that neither experience nor an enlightened pathology support this plan.

Second, a period in which the treatment was based upon the administration of so-called specific remedies—a method which, having its origin at a time when not only, as now, our knowledge of the specific cause of scarlatina was most indefinite, but when even the germ theory of the infectious diseases in general still rested upon pure hypothesis—was wholly without scientific basis. The treatment of this period, earnestly advocated by different observers, as its various plans were, resulted in disappointment and failure, and has of recent years fallen largely into desuetude.

As a consequence of the reaction from the disappointed enthusiasm in regard to the second plan, a third method of treating scarlet fever came into vogue. This may be described as the rational, or expectant-symptomatic plan. It is advocated in the greater number of the recent text-books upon practice. The principles upon which it is based are familiar. They depend upon our knowledge of the self-limitation of the acute infectious diseases, and our ability, the result of the accumulated experience of the profession, to modify, within somewhat narrow limits, the intensity and the disastrous effects of particular symptoms.

The general adoption of this method of treatment at the present time, when a more exact knowledge of the causation of certain of the acute infections inspires the hope that the true methods of specific treatment may yet be discovered, is not so much a manifestation of theoretical disbelief in specific treatment as it is an indication of our inability, up to the present time, to realize our expectations in this direction.

A plan of treatment which at once relieves the more urgent symptoms of the disease, and anticipates their development, fulfils, in a high degree, the more important therapeutic indications. If any such plan realizes to some extent the requirement of a specific medication, its value is proportionately enhanced.

Such is the plan under consideration.

It consists chiefly in the administration, from the outbreak of the attack of scarlet fever until defervescence, of small and frequently repeated doses of chloral hydrate. The administration of this drug in acute disease for the relief of restlessness and for the promotion of sleep is familiar. It is, in fact, a matter of every-day occurrence, especially in the treatment of diseases of children, who bear chloral remarkably well. Simply to advocate its use for these purposes would be to occupy unnecessarily the attention of the readers of this journal. The use of chloral which I am about to describe is not only different, but is based upon a wholly different view of its effects in this disease. Chloral, under this method, constitutes the drug employed from the beginning to the end of the febrile stage. If other medicaments are used, it is for the purpose of meeting special indications not fulfilled by the

chloral, or to counteract certain effects of the chloral, which, when exaggerated, are unfavorable.

The plan is as follows: So soon as the patient is suspected or known to be developing scarlatina, a laxative dose of calomel, proportionate to the age and general condition, is administered. Shortly thereafter chloral is given, in moderate doses, at intervals of two or three hours, or longer, throughout the attack. The dose varies with the age of the child; the frequency of its administration depends largely upon its effect. To infants of two or three years, a dose of from one to two grains may be given, the dosage being gradually increased with older children; that for adolescents reaching five grains. The tranquillizing and sleep-producing effects of the drug are in most instances promptly realized, the patient falling into a condition of quietude or somnolence, in striking contrast to the discomfort and jactitation which are so distressing in the well-developed disease.

The repetition of the dose should not be more frequent than is necessary to maintain this condition of quietude, a condition from which the patient may be easily aroused, and into which he quickly relapses when disturbed. It is neither necessary nor desirable to push the drug to the establishment of a deeper sleep. Profound narcotism is, of course, to be avoided. The patient may thus be kept in a condition of light repose throughout the whole duration of the fever. By this means, not only is there obtained relief from the restlessness and distress of the active period of the disease, but much wear and tear of the nervous system and some exhaustion from muscular effort are prevented. Delirium is controlled; the itching and burning of the skin due to the eruption are allayed; in a word, the greater number of the distressing symptoms of the disease are favorably influenced by the cautious and prolonged administration of chloral hydrate in efficient doses.

As a rule, the drug is easy of administration and well borne by the stomach. I have found its acrid after-taste best masked by the administration in Aubergier's syrup of lactucarium diluted, thus:

℞.—Chloralis . . . . . gr. xxx.
Syrup. lactucarij (Aubergier) } āā ℥jss.—M.
Aquæ . . . . . }

SIG.—A teaspoonful in iced water every two, three, or four hours.

The administration of nourishment immediately after the medicine is desirable. The sleep-inducing properties of the drug manifest themselves rapidly, but are not prolonged; therefore, its repetition at intervals of two or three hours is called for.

The elimination of the drug takes place chiefly by the kidneys, and to a large extent as chloral. Decomposition with the formation of chloroform does not, as Liebreich anticipated, take place within the organism. This fact is of some theoretical importance, in view of the well-recognized antiseptic properties of chloral. Chloral acts, then, as a local antiseptic upon two tissue areas that are especially prone to the pernicious effects of the infecting principle of scarlatina. These are the throat and the kidneys. It cannot be claimed that chloral, in such doses as are safe, exercises to any great degree a specific antiseptic effect upon the fluids of the organism at large. Nevertheless, the continual presence of even small amounts of chloral in those fluids may be held to exert to some extent an influence upon them unfavorable, so far as it goes, to the development of bacteria.

The local action of chloral in these doses upon the throat in ingestion, and upon the kidney in elimination, is direct and efficacious, as shown by the lower grade of intensity of the inflammation of the palatine arches and tonsils, on the one hand, and by the almost constant absence of albuminuria on the other. The diuretic action of chloral is almost invariably manifested, the urine being much increased in quantity, of lower specific gravity, light-colored, and faintly acid. The diuresis is sometimes enormous, reaching from fifty to eighty fluid-ounces in the course of twenty-four hours. In a large number of cases intercurrent abuminuria was rarely encountered, and post-scarlatinal nephritis was not observed, although the cases were kept under observation for prolonged periods.

Chloral in the doses given appears to exercise no influence upon the primary temperature curve of the disease, defervescence taking place between the seventh and ninth days by rapid lysis as is usual.

Otitis media, extensive adenopathy of the cervical lymphatics, the collar of brawn, and abscesses, under this treatment do not occur. Hence, troublesome secondary fever, by which the febrile movement of scarlatina is often prolonged indefinitely, is prevented.

In the above doses chloral does not appear to be a cardiac depressant, exerting, in the earlier periods of the disease, simply a favorable influence upon the excited heart, similar to that of small and frequently repeated doses of aconite. If during the course of the disease, especially at the beginning of defervescence, the heart flags, alcohol must be given. As a matter of fact, alcohol in the form of milk punches, wine whey, or egg-nog, forms a useful addition to the dietary throughout the course of disease.

From the beginning of the attack the nasal passages and the throat are systematically treated by antiseptic sprays, such as weak dilutions of Labar-

raque's solution, Dobell's solution, Listerine, or the antiseptic tablets devised by Dr. Seiler. This is done from the beginning in all cases. I regard it as a prophylactic measure of great importance, preventing the accumulation and retention of the morbid products of the inflamed mucous membrane and diminishing the risks of secondary mixed local infection, the cause of the throat and ear inflammations which constitute occasional complications.

From the time of the appearance of the eruption inunction is practised. For this purpose freshly washed lard is employed.

If the arrangements are such as to secure thorough disinfection of the clothing before it is washed, frequent changes are permitted; otherwise, to avoid risk of contagion, the patient is allowed to wear the same night-clothes throughout the attack. After the child leaves the room, thorough disinfection is to be practised by sulphur fumigation in the presence of moisture.

During the convalescence, quinine, nux vomica, and iron are indicated.

Whether or not other hypnotics, administered upon the same principles, would yield equally favorable results in the treatment of this disease, I cannot say. Chloralamid, among the recent synthetic narcotics, appears to be more efficient as a sleep-producer than chloral, and less dangerous; but we have yet no experience with it, nor does it possess the antiseptic qualities of chloral.

In conclusion, the following propositions are affirmed:

1. The treatment of scarlet fever by chloral hydrate without the use of other drugs has yielded satisfactory results.

2. The chief *rôle* of chloral in the treatment of scarlet fever is that of a sedative to the cerebral centres. It appears to antagonize certain exciting toxic principles formed within the organism during the course of the disease.

3. Chloral is also useful on account of its antiseptic properties, (*a*) upon the throat; (*b*) upon the kidneys; (*c*) to a slight extent upon the fluids of the organism at large.

It is necessary in this connection to bear in mind the difference between the germicide and the antiseptic influences of drugs. No amount of chloral compatible with the maintenance of life can act within the organism as a germicide. It is assumed that medicinal doses may *tend* to render the fluids of the body antiseptic, that is to say, may *tend* to impair to some extent, their fitness as culture media for pathogenic bacteria.

4. The elimination of chloral by the kidneys and its diuretic effect render it especially useful in the treatment of scarlet fever.

A CONTRIBUTION TO THE THERAPEUTICS OF TYPHOID FEVER.[1]

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THE results in the treatment of typhoid fever continue to be so bad in general in this country as to constitute a chronic opprobrium to the art of medicine here. We do not seem to be capable of approaching, at least in New York, the low rate of mortality which has rewarded the efforts of the medical profession in many cities of Europe. While we endeavor to explain our relatively higher death-rate by various differences which, without doubt, exist in the manner of collating and recording statistics in different countries, and while we may have to deal with a larger percentage of *bad cases*, cases which come under treatment in hospitals late in the disease—too late, indeed, to allow of anything like active therapeutic procedures—still, after making every allowance for local differences of these descrip tions, it must be admitted that our death-rate in this disease is far higher than it should be. I believe, too, that the fact that we have not as yet arrived at anything at all resembling a general consensus of opinion regarding its treatment is in itself evidence that many cases must be improperly treated, and that in this way much of our high mortality is to be accounted for.

Those who still adhere to the expectant plan of treatment are still in the large majority here. The expectant plan seems in a general way to make us quite content with our bad results, and to lead us to expect the patient to die if he becomes gravely ill. In this plan of treatment practically nothing is done unless symptoms in themselves very disturbing or grave, or even threatening, develop; and then much is often done that is likely to be pernicious in its effects. Doctors of this class seem to be pretty well in accord as to the proper plan of procedure, and to believe that a simple *symptomatic treatment* is the rational one. If a patient have a headache he receives the bromides, or an ice cap, or both, depending upon its severity; if he develop a bronchitis he is given opium, or cough mixtures, or inhalations; if he suffer from tympanites he is given turpentine, or turpentine stupes are applied; if he have a diarrhœa he is given opium and astringents; if hemorrhage from the bowel occur, to the opium is added tannic acid or gallic acid, or some other equally useless and disturbing drug; if he become delirious, the dose of the opium is increased, or he is physically restrained; and, most pernicious of all, if his temperature reach what is considered a dangerous height, an elevation which, long continued,

[1] Read before the Practitioners' Society of New York, December 6, 1889.

would become incompatible with life, he is given a *large dose* of some antipyretic drug, and his temperature is suddenly reduced to a level which may be several degrees below the normal. Often this objectionable procedure is repeated in an almost rhythmical way for several days or weeks; and if, accompanying the fall of temperature thus produced there be a degree of prostration and feebleness of the heart which is alarming in itself, then, to counteract this bad symptom for which the drug and the doctor are responsible, alcoholic and other stimulants are given in large amount. This method of treatment, if it be proper to call that a *method* which seems to lack all true system—is often dignified by its advocates by the appellation *rational*. In fact, however, it would be difficult to devise a more irrational method than the symptomatic method, carried to its logical issue. It would be quite as proper to treat perityphlitis symptomatically as to treat typhoid fever so; and yet who would think of treating the constipation of perityphlitis by purgatives? Who would now think of withholding food or drink of proper kinds from a fever patient merely because he may prefer, having no appetite, to be left undisturbed rather than to take an adequate supply of nourishment at definite intervals? And yet, if we are to be guided simply by *symptoms* in the treatment of this disease, the presence of anorexia should lead us sometimes greatly to diminish, and sometimes totally to withhold, the supply of food.

Unfortuately, those of us, on the other hand, who believe in treating the disease upon some other and more definite system, are still very far from being in accord as to the best method to pursue in the average case.

In the uncertainty which still prevails in this branch of therapeutics, it would seem that any one possessed of any facts bearing upon the subject need offer no apology for presenting them to his brethren.

During the past year it has fallen to my lot to treat about fifty of these patients, chiefly in the New York Hospital and the Bellevue Hospital. It would be premature to say that results were due to treatment, inasmuch as this number of cases is very small, and also because the same method of treatment was not pursued in each case; but that the results followed the treatment, and that, all things considered, the results have been in the main satisfactory, seem to justify a brief publication of the general plans adopted.

That the severity of the type of fever prevailing in one year may differ greatly from the severity of the type of the next year, has often been noted. As the fever prevailed here last year it seemed to me to be of much less severe type than is usual in New York; and this year it seems to me to be fully up to the average degree of severity. It may, therefore, well be that good results, which in numerous cases attended the plan of treatment by intestinal antisepsis last year, are really to be explained by the fact that the disease which prevailed at that time was of an unusually mild type. The antiseptics which I used last year in the New York Hospital were *resorcin* and *beta-naphthol*. When patients entered the hospital sufficiently early in the disease, that is to say, within the first ten days, the routine method was to administer a calomel purge of ten grains, and then immediately to follow this drug by a dose of one of these antiseptics, which was repeated at varying intervals, day and night, as a rule, until the temperature became normal, and remained so.

When resorcin was used, it was given in the dose of five grains every four hours; when beta-naphthol was used, its dose was two grains, given every two, three, or four hours, depending upon its effects. These drugs were administered in pill form, and each pill was carefully coated with keratine, to insure it against changes to which it might have been subjected in the stomach. Thirty-three well-marked cases of this disease came under my care in this hospital last year, and of these, twenty-seven were treated antiseptically in one of the ways indicated.

But little use was made of any of the newer antipyretic drugs, though in some cases occasional doses of phenacetine were administered. This formed no part of the *plan of treatment*, and was ordinarily given only a few times when the temperature remained persistently high.

The effects of the antiseptics upon Ehrlich's reaction were interesting. This reaction, even though it might have been ever so plainly present when the patients began treatment (and it was so almost invariably), usually disappeared after the first few doses, and remained constantly absent while the drugs were given. In several cases, for experimental purposes, the drugs were stopped, and the reaction promptly returned, to disappear again when the administration of the drugs was resumed. Of unpleasant consequences of these drugs, I have to record the occurrence of blood, albumin, and casts in the urine in a few patients who took beta-naphthol. These symptoms were always looked upon as positive indications to discontinue the drug, and they disappeared promptly when it was stopped. Resorcin produced absolutely no unpleasant effects.

The effects upon the temperature and duration of the disease seemed sometimes quite unmistakable, and to be about the same in the cases of those who were taking either drug. In six cases the fever lasted seventeen days or less, in three it lasted only two weeks, and in nine cases the fever ceased entirely in just three weeks—all from the date of its commencement. In the other cases it lasted generally about four weeks, though in a few instances

it continued over four weeks and did not seem to be materially influenced by the treatment. In two of these it lasted five and six weeks respectively. Among this latter class, however, are included two cases which can hardly be said to have been subjected to this plan of treatment, for they died in one and two days respectively after the treatment was begun.

Of these twenty-seven patients five died; but of these one was under this treatment only one day, two others only two days, and a fourth only six days. Of these deaths, one was due to extensive ulceration of the colon with profuse and wasting diarrhœa; one to profuse hemorrhage; one to lobar pneumonia; and two to parenchymatous nephritis. These two latter were treated by beta-naphthol and resorcin, respectively one and six days. In consequence of its short duration the treatment could hardly be considered the cause of this grave symptom. The height of the fever seemed to be even more markedly affected than its duration, and the comfort of the patients was proportionately promoted. In most cases it did not rise above 103° F. after treatment was begun, and it ranged usually between 100° and 102°.

Twenty-two of the patients were males and five were females. All but seven were twenty-one years of age or older, and these seven were aged respectively eight, eleven, fourteen, sixteen, seventeen, eighteen, and nineteen years. The fatal cases were aged respectively seventeen, twenty-four, twenty-five, twenty-six, and thirty-five.

Milk was always the chief, and, usually, the only food, until the patients became *very hungry* shortly before the temperature became normal, at which time eggs, chops, or steak were allowed.

Excepting the complications mentioned in relation to those who died, but very few and chiefly insignificant complications occurred. There were but two relapses, and these were not serious.

Diarrhœa was present among the early symptoms in a majority of these patients, and it was usually well influenced by the drugs given without opium or other astringents.

The eruption was nearly always present, and was not affected by treatment.

Albuminuria was often present, but never became an alarming symptom, except in the cases of the two patients who died of nephritis after having been under treatment one and six days respectively.

Estimated by mortality percentage alone, this record cannot be claimed as a brilliant showing for intestinal antisepsis; and it may well be that further experience will lead us to abandon the hope of being able to attack this disease at the site of its most marked lesion; but, all things considered, the results are certainly better than those which have followed the expectant plan of treatment in any year in this hospital.

I desire to say that I have been greatly aided in the tabulation of these and other statistics of these cases by Drs. G. H. Cobb and H. A. Griffin, of the house staff.

It would be a source of great regret to me to give the impression that I consider this method of treatment as to be compared with the antipyretic method, *i. e.*, the antipyretic effect of cold water applied to the surface of the body.

It seems to me that any one at all open to conviction by statistics cannot but admit that the recent statistics of Brandt, as quoted by Professor H. C. Wood, of Philadelphia, in the recent edition of his text-book on *Therapeutics*, make a marvellously good showing for the cold water treatment. After reading these statistics it would seem as if all other plans of treatment were of insignificant value when compared with this one.

Unfortunately, however, two factors of vital importance in the treatment by cold baths seem likely always to be lacking here. The absence of these will probably always prevent our being able to save as large a proportion of patients ill with this disease as is now saved in Germany, and must reconcile us to our higher morality, although I firmly believe that our death-rate, even under existing unfavorable conditions, is needlessly high. I allude primarily to the fact, to which reference has already been made, that patients habitually come under observation and treatment later in the disease than is the case in Germany. It is well known that in Germany and Austria many patients are received into hospitals with various trifling maladies that would not be supposed to justify them in seeking hospital treatment here. Thus people acquire the habit of going to hospital upon comparatively slight provocation in general, and do not wait, as is so commonly the case here, until their illnesses become pronounced and severe. It is, I think, exceptional for us to see in hospital a patient in the prodromal stage of a typhoid fever, or even in the first few days of the pyretic period, except when we give him the disease in the hospital, as sometimes happens. This coming under treatment late deprives them of *some* chances of recovery, no matter what plan of treatment be adopted. The second misfortune which militates against our success in the treatment of this grave disease, is the unsatisfactory manner in which our hospitals are conducted. The shifting attendance of several doctors, each for a few months only in every year; the rapid changes by rotation in the house staff; the constant changes in the nursing force, and often the unsatisfactory character of the nursing; all these evils render it impossible for most physicians to carry out promptly,

efficiently, and with due regard to the exigencies of each case and on a large scale, any such thorough and systematic method as the cold water treatment of fevers. We cannot ourselves become thoroughly familiar with the method, and cannot, of course, properly train and discipline a shifting and temporary body of assistants and nurses.

In the face of these discouraging facts, I have lately been trying to accomplish the principle of Brandt to a certain extent by other means than the cold bath. We receive into Bellevue Hospital a considerable number of patients suffering from this disease. But they are recruited largely from the poorly fed, badly nourished, and intemperate classes, and they usually come under treatment late in the disease. Many of these patients do not bear the cold full-bath well. The depression which it causes seems to be too profound, and the reaction from it very slow.

Accordingly, I have been trying to keep the temperature of the patient constantly at or below 102° F. without the use of cold baths. This is often well accomplished by the *cold pack*, administered whenever the temperature rises above 102°, no matter how frequently it may need to be applied. Few even of this unpromising material do not bear this procedure well, and only occasionally is one encountered in whom the pack when properly applied is not capable of causing a prompt reduction of temperature. Occasionally a patient is met with whose temperature shows such a tendency to rise immediately after the pack as to render the repetition of the procedure necessary after but a brief interval. Under these circumstances I have found it desirable to combine the wet pack with the administration of a small dose of an antipyretic.

It is never desirable in this disease to give these drugs in the large doses which were in vogue when we first began to use them. Moreover, it is well to bear in mind that they are rapidly eliminated from the body, and that to be of continuing effect they must be given in small and frequent doses. No good is likely to result from an occasional large dose of them.

If, however, we use them in *small and frequent doses to supplement the effects of the cold pack*, I believe that they become of distinct value in the treatment of this disease.

Many patients whose fever is not controllable by cold packs alone respond promptly to a cold-pack *plus* five grains of antipyrin, the latter given as often as *every hour*. Both these should indeed be repeated as often as this while the tenperature continues above 102°.

It soon ceases to be necessary to repeat either at very short intervals, and after a few days the drug can usually be discontinued entirely and the frequency of the cold pack greatly diminished. The latter is rarely necessary oftener than four or five times in twenty-four hours.

Once in a while it happens that the packs are not well borne at the commencement, and the fall of temperature caused by them may be then not sufficient to justify their continuance.

In such cases I have found that a few doses of an antipyretic drug, just enough to cause the temperature to fall a few degrees, can be well followed by the combination of the packs and antipyrin, as already described.

This endeavor to carry out the principle of Brandt, in so far as it relates to keeping the temperature continuously low throughout the disease, is certainly worth a trial, and can be recommended to those whose clinical material and resources do not allow of the use of the cold full-bath. This is probably the most important principle involved in the antipyretic treatment of fevers, and experience has led me to believe that it will commend itself to all who apply it consistently *in any way* to a considerable number of cases. I have treated a few cases throughout their period of fever by the administration of five grains of antipyrin every hour, and a few others by giving small doses of sulphate of thallin every hour in the same way as long as the temperature remained above 102°. The elimination of these drugs is so rapid that there is no danger of a cumulative effect in using doses like these, and therefore no liability to sudden or great fall of temperature with cardiac depression.

At the same time, the increased heat diffusion is very great, and the general principle of Brandt of keeping the temperature continuously low can thus be carried out.

The cold-pack, however, for the average case that will not stand the cold bath is doubtless decidedly preferable to this plan.

In the past few weeks I have subjected eleven cases in Bellevue Hospital to treatment by the cold-pack, and with very gratifying results. The house physician, Dr. Painter, has kindly supplied me with data of these cases, taken from the hospital records. These patients all got well. They were all adults, only one as young as twenty years, and most of them made of the very poor material which seeks admission to our public hospitals in this city. In most of them the temperature was persistently high, and they came under treatment late in the disease —*i. e.*, after it had lasted between one and three weeks.

In a few instances the pack was kept up for fifty minutes, and ice was occasionally rubbed over the surface of the wet sheet which covered the patient. If, however, the method be persisted in, the patient being treated otherwise with care and discretion, it

is usually not long, not more than a few days, before the temperature will remain habitually below 102° in response to a single pack in a day, and that of only a few minutes' duration.

It is a matter of greater importance than is commonly supposed that these patients should not be kept too warmly covered in the intervals between the packs. It should be borne in mind that we wish to increase heat diffusion as much as possible, and that this is to be promoted directly in proportion to the thinness and conductivity of the patient's covering. Under no circumstances should a fever patient have any more covering than due regard to his comfort renders necessary; and his unaided sensations are not always a safe guide. In his obtuse condition he often thinks that he wants several blankets, when a little gentle persuasion will lead him to believe that he really needs but one.

On the whole, the method of treatment by the cold-pack has been more gratifying to me than that by the internal use of antiseptics: but I wish again to emphasize the importance of using it systematically and so frequently as to keep the temperature always below 102°.

CLINICAL MEMORANDA.

SURGICAL.

Two Cases of Excision of the Wrist-joint.—The comparative rarity of the operation of excision in cases of disease of the wrist-joint so extensive that a removal of the entire articulation is necessary, the prevalent idea as to the danger entailed by the operation, and the scepticism with which many surgeons regard the possibility of preserving a useful hand after a complete resection of the wrist, have induced me to place on record the following cases upon whom I performed this operation.

CASE I.—B. P., widow, æt. forty-eight, a cook by occupation. Both parents, four sisters, three uncles, husband, and one child died of pulmonary consumption. Has always been remarkably well and strong with the exception of an attack of rheumatism of the knees and ankle ten years ago; from this she suffered much pain for several weeks but was not disabled. Three years ago, when much fatigued and overheated, she wrung out a number of towels which had been soaking in ice-cold water. Her right wrist pained her through the night and was stiff next morning. This stiffness shortly wore away with use, but returned again at night together with sharp cutting pains which disturbed her sleep. In three months her hand became so stiff, painful, and weak that she had to give up work. Since that time the local condition has gradually become worse, there has been a progressive swelling of the joint, the pains at night have been intolerable, the hand has become absoluely useless, and there has been a serious deterioration in her general health.

Admitted to Philadelphia Hospital, July 16, 1889. The hand was held rigidly between flexion and extension; the fingers were extended, swollen and stiff; the thumb could be moved slightly. The muscles of the forearm were greatly atrophied and the anatomical points of the wrist were marked by an obscurely fluctuating, very tender, fusiform swelling, most marked upon the dorsal aspect of the joint. The styloid process of the ulna was prominent, the corresponding bony point of the radius could be found with difficulty.

Tonics, splints, pressure, and extension, together with local applications, were tried for one month, but produced no effect upon either the pain or swelling. The patient was willing to submit to any measure which would afford her a chance of relief.

August 16th, the joint was excised; a single long dorso-radial incision, beginning an inch and a half from the articular extremity of the radius and running obliquely downward to the middle of the metacarpal bone of the index finger was made into the joint. Caries and suppuration had already begun, and had involved the articulation so extensively that complete excision was necessary. All the carpal bones were removed, and the diseased articular surfaces of the radius, ulna, and metacarpal bones were cut away by means of the metacarpal saw and bone- forceps, and the diseased synovial membrane was carefully dissected out with knife and scissors. A tourniquet was not used; the tendon of the extensor carpi radialis was the only one divided, and but a single vessel required ligation. A counter-opening was made in front of the wrist, a drainage-tube was pushed through, the large cavity left by the removal of so much bone was packed with iodoform gauze, and after a careful antiseptic dressing the hand was placed on a Bond splint.

The operation lasted nearly an hour, and at its close the patient's temperature was 96.4°. She reacted quickly and pursued a typical apyretic course to complete healing. Passive motion of the fingers was begun the day following the operation. In two weeks the Bond splint was replaced by a light metal splint allowing more freedom of motion, the arm was rubbed and faradized daily, and the patient was encouraged to use the hand as much as possible.

At the present writing, three months from the time of operation, this patient has a useful hand and one entirely free from pain. She can pronate and supinate, slightly flex and extend all the fingers, oppose the thumb, and has resumed her sewing. A great part of her remaining disability is due to the pronounced muscular atrophy, which, in time, will probably disappear.

CASE II.—M., æt. twenty-eight, housewife, of dissolute habits. Was bitten in the hand while fighting with a woman. Very violent inflammation followed, involving the tissues beneath the palmar fascia. Fearing that she would be "cut" she refused to see a doctor for two weeks, when the extension of the swelling of the forearm induced her to apply to the Howard Hospital for relief. An examination showed that there was a purulent infiltration not only of the sub-palmar structures, but also of the wrist-joint. The parts were freely incised, irrigated and drained, and the hand was put upon a palmar splint. This promised well for a time, but the patient persisting in the free use of alcohol, suppuration became very profuse, the pus showed a tendency to infiltrate the forearm, and marked symptoms of absorption developed. Amputation was strongly advised but absolutely rejected by the patient. Excision was

then suggested, and to this she consented. The radial and ulnar incisions of Lister were made, and the extremities of the radius and ulna, all the carpal bones, the necrosed metacarpal bone of the thumb, half the metacarpal bone of the index finger, and the articulating extremities of the remaining metacarpal bones were removed. All the suppurating area which could be reached was curetted, the wounds were freely drained, and antiseptic dressings and a Bond splint were applied. The night following this operation the patient was intoxicated; the following night she had some difficulty with her friends, and rising from her bed cleared the room of them, using her splinted arm as a weapon. Suppuration followed this, and amputation being still refused, bichloride irrigation 1:1000 was continued for three weeks, vent being given to the pus by frequent incisions. At the end of this time an opening made in the palm for the evacuation of a fresh collection of purulent matter showed that the flexor tendons of the index and middle fingers were sloughing, and the patient at last consented to an amputation. She subsequently regained her health completely. An examination of the amputated hand and wrist showed that the seat of excision was filled in with newly formed fibrous tissue, and that a continuance of the suppurative process was caused by necrosis of the second and third metacarpal bones.

In the first case the stiff and useless hand held in very slight extension with fingers straight, the tender, obscurely fluctuating, fusiform swelling, not accompanied by obvious heat or redness and of several years' duration, the steady progress of all bad symptoms in spite of very careful and long-continued treatment, and the distinct tubercular element in the family of the patient on both the mother's and father's side, made the diagnosis of tubercular arthritis almost positive.

For three years before her entrance to the Philadelphia Hospital she had been under almost constant medical treatment. She had taken large doses of anti-rheumatics for long periods of time, had been frequently blistered and counter-irritated locally, the wrist had been thoroughly manipulated (a most dangerous practice in these cases) mercury and belladonna ointments, equal parts of each, iodoform ointment, splints, pressure bandage, and finally ichthyol ointment, 50 per cent. in lard, extension, and the plaster-of-Paris bandage, had all been tried. The constant and wearing pain, the impairment in general health, the failure of palliative measures, and the tubercular family history were the factors which called for a prompt operation. The family history was of especial importance in the case, since the fact that wrist-joint tuberculosis is particularly liable to become disseminated is well recognized. The excision was accomplished through a single incision, but not so readily or quickly as in the case where the two incisions of Lister were employed. There is no objection to be urged against the additional opening over the inner and anterior aspect of the joint. The packing of the cavity with iodoform gauze is, in view of the antitubercular effect of iodoform, to be particularly commended; and a most important factor in the favorable treatment of this case was, I think, the persistent passive motion which was begun the day following the operation.

The second case is illustrative of a class to which resection is not adapted: the bone disease was so extensive that entire removal down to healthy tissue would necessarily have left a flail-like hand. Since several of the metacarpals were involved along the greater part of their shafts, the inflammatory action in the hand had already been so widespread that nothing better than absolute fixation of all the flexor tendons could be looked for. The joint was removed in this case simply as a means of lessening the suppurating area.

The operation of wrist excision is tedious but not difficult; no important bloodvessels and but one tendon are cut. To diminish the space between the metacarpals and the forearm bones after the operation, I should in another case be inclined to adopt the method of Lauenstein, who, after operating in the usual way through the long dorso-radial cut, sutures his wound transversely, thus not only bringing the hand and forearm nearer together, but also placing the latter in the position of extension, a very distinct advantage from the standpoint of future utility.

EDWARD MARTIN, M.D.

An Analysis of Nine Cases of Penetrating Stab-wounds of the Abdomen Treated by Laparotomy.—Laparotomy for traumatism is daily becoming such an important factor and such a universally recognized method of procedure in modern surgical operations that it needs neither eulogy nor defence. The rule seems well established, that in cases in which penetration of the peritoneal cavity has occurred abdominal incision should be promptly done, and the viscera carefully examined. If the intestines or stomach be wounded, rectal injections of hydrogen usually demonstrate the existence of the lesion prior to operation; but that cannot always be relied upon, unless used with great skill, for I have seen it fail from want of skilful manipulation, and that too in a case which, upon subsequent section, disclosed a large ragged wound extending directly through the stomach. Should hydrogen injections give assurance of no intestinal injury, an "exploratory" incision may be necessary to determine the existence of other visceral lesions or internal hemorrhage. By this means the latter can be checked, and foreign substances, as clothing and clots, washed out. Nor does this seriously complicate an already grave state.

The conditions existing in a case in which operation is necessitated as the result of traumatism are usually the most unfavorable, and exactly the contrary to those present when disease compels surgical interference. In a series of nine cases of penetrating stab-wounds of the abdomen treated in the Pennsylvania Hospital during a portion of my term as surgical resident, an analysis reveals the following conditions: Six of the patients were intoxicated upon admission. Seven received their wounds in fights, and five of this seven had various other injuries accompanying the stab. Three had more than one penetration, and eight had more or less visceral injury. Shock, generally profound, sometimes amounting to collapse, was present in all but one case, and was undoubtedly in a great measure due to internal hemorrhage in six patients at least. Death supervened in six cases from shock, exhaustion, or delirium tremens. Operation was promptly performed in all cases, four hours being the longest time between the reception of the wound and operation.

The *modus operandi* adopted in the treatment was practically the same throughout. Intestinal wounds were sutured with fine silk or catgut. Hot distilled water irrigation, with glass-drains, was commonly employed.

Peritoneum, muscles, and skin were included in each suture, and full antiseptic dressings finally applied. Drainage-tubes were kept clean by frequent emptying with a hard-rubber syringe and a stilette armed with absorbent cotton. Liquids were given sparingly by the mouth, stimulants being administered hypodermatically. Opium was but rarely used.

The large percentage of deaths was due, it seems to me, to several causes. Most of the patients admitted that they were steady, hard drinkers. Several were Italians, whose physical condition was by no means the best, nor were they, as a rule, able to bear with any degree of fortitude the pain necessarily entailed. All were in a condition of shock, from which some did not react before the time when it was deemed best to operate. In several great handling and exposure of the intestines were necessary, both to locate perforations and bleeding points. Ether nausea was common, and at times persistent. Tympany was usually an obstinate symptom. The complications were wounds of the bladder, the liver, the kidney, and the lung.

In a series of such severe cases we naturally expect a high mortality, but I cannot conceive that *any* of the above could have recovered without operation, and do not believe that the operation in itself contributed to the number of deaths.

WALTER D. GREEN, M.D.

A Case of Strangulated Inguinal Hernia, the Protrusion being Epiploic Appendices—Radical Operation—Recovery.—The following case, although not unique, presents, I think, one or two points of interest, for which reason it is placed on record.

F. C., aged forty-four, a glass-blower, the subject of a left inguinal hernia, for which he had worn a truss for some years, was admitted to my wards in the Episcopal Hospital at midnight on the 8th of July, his rupture having come down about twenty-four hours previously and having resisted his usual manipulations to reduce it. At the time of admission the hernial tumor was found by the resident physician, Dr. B. B. Reath, Jr., to be tensely swollen, and efforts at taxis tried to the limit of safety were unsuccessful. There was no general or constitutional sign of strangulation, although there was considerable local pain. The patient was put to bed, a dose of opium given, the thigh placed in the position most favorable to relax the part, and an ice-bag laid upon the swelling. When I first saw the patient, at my visit at noon on the 9th of July, or twelve hours after his admission, the local tenderness had increased somewhat, and there was general abdominal pain, the features were becoming pinched and the countenance anxious. There was no vomiting, and there had been an evacuation of the bowels since the rupture had come down. A gentle trial of taxis convinced me that nothing could be accomplished in that way, and I decided to operate at once, and obtained the patient's ready consent. Making an incision the full length of the tumor, the upper angle being over the position of the internal abdominal ring, where the constriction could plainly be felt through the tissues, the sac was speedily exposed, and, my intention being to make the operation radical, I carefully separated it from the spermatic cord—a task that was far from easy, not only because of numerous adhesions but also because the sac was irregular, or sacculated in shape. The separation accomplished, I carefully opened the sac, giving exit to a considerable amount of blood-stained serum, and investigated the nature and condition of the contents. At first I supposed what I saw to be a small portion of the great omentum—an epiplocele—but I afterward discovered that it was two epiploic appendices, deeply congested and firmly matted together. The colon to which the appendices were attached was held firmly at, and was partly pinched by the mouth of the sac. Ligatures were applied to the two appendices, and they were cut off, and a third one which came into view within the ring was similarly treated. A strong silk ligature was applied to the neck of the sac, my finger being within it and guarding the ring while the knots were tied. The sac was then cut off, and the stump secured by stitches to the muscular tissue above the internal ring. Drainage was provided for by several strands of catgut brought out at the upper angle of the wound, and a small drainage-tube at the lower angle. Stitches were then carried through the muscles and the aponeurosis above, and Poupart's ligament below, and the canal so closed, and the lips of the wound brought together with superficial sutures.

The progress of the case was excellent, save for a rise of temperature in the evenings of the fourth and fifth days, to 103°, due to constipation, on relief of which it fell to normal and so remained throughout. On the eighth day the drain-tube and the superficial silk stitches were removed, and healing appeared to be about established. At the end of the second week the upper angle of the incision broke down and gave exit to a few drops of pus, and in a few days the ligature which had surrounded the neck of the sac came away, a deep ulcer being left over the position of the internal ring, and communicating with a sinus running beneath the superficial fascia nearly the whole length of the inguinal canal. Healing took place gradually, by granulation, the patient being kept in bed until it was complete, altogether about eight weeks. At the end of ten weeks he was discharged with a firm cicatrix.

This is the second case in which I have been disappointed by failure to secure thorough and rapid healing after closing the wound in the manner above described. In both, the integument healed speedily but soon broke down, and, after all, cicatrization by granulation took place. I am now inclined to look upon this as desirable, and as leading to a firmer cicatrix than that which results from primary union. The operation of McBurney is, I am satisfied, the most rational, and holds out the best promise of permanent cure.

The length of time the patient should be kept in the recumbent posture is a point of the first importance. He should not be allowed to get up until healing is *complete*, nor in any case in less than six weeks. This is the rule I follow.

THOMAS R. NEILSON, M.D.

A London Polyclinic.—A system of post-graduate instruction has, for the first time, been inaugurated in London, under the presidency of Mr. Jonathan Hutchinson. The secretary of the first course may be addressed at No. 60 Welbeck Street, West. An abundance of clinical opportunities, hitherto unused, will be available to those associated with the new school.

HOSPITAL NOTES.

THE TREATMENT OF SIMPLE PYLORIC STENOSIS BY GASTRO-ENTEROSTOMY (BY ABBE'S RINGS), RATHER THAN BY LORETA'S STRETCHING OPERATION.

Abstract of a Clinical Lecture, Delivered at the New York Hospital, December 5, 1889.

BY ROBERT F. WEIR, M.D.,
ATTENDING SURGEON.

DR. WEIR, at his clinic at the New York Hospital, performed the above operation by means of Abbe's catgut rings, on a patient aged forty-one, whose symptoms of vomiting and emaciation had lasted nearly two years. Only once had blood been vomited, and this, with the duration of the case and the absence of a perceptible tumor even when examined under anæsthesia, together with the continuance of hydrochloric acid in tested meals, led to the conclusion that the stenosis was non-malignant, and that it was possibly due to the contraction of an ulcer. The distention of the stomach was great; it held eight pints of fluid, at which time it could be felt three inches below the umbilicus. Ewald's salol test revealed the decisive discoloration only one and a half hours after ingestion of the drug. The patient's weight was 104 pounds.

The operator presented to the class, at some length, his reasons for the choice of gastro-enterostomy on the patient then before them, and gave a rapid review of the various methods resorted to in the treatment of pyloric disease by operation. He cited the fact that in the eighty-one cases of pyloric resection with sixty-one deaths collected by Winslow, there were reported six cases in which this operation was performed for non-malignant disease of the pylorus—in three of these cases, however, death resulted. The mortality of resection alone must throw it out of consideration, and resection of the pylorus, as at present conducted, is an operation without much future, unless intestinal anastomosis done with plates or rings may so far shorten the operation as to diminish its risk. An allusion was here made to Billroth's celebrated case of resection of a cancerous pylorus with turning in the ends of the duodenum and stomach, making them thus blind cul-de-sacs and the opening between the two being subsequently effected by a gastro-enterostomy. This operation appeared to him, with the use of anastomostic plates or rings, to be better than the one now in vogue. Heinecke's pyloroplasty was described, but was not considered as applicable in this instance, being more fitted for ulceration with hemorrhage. Loreta's operation of incising the stomach and stretching the pylorus was then detailed, and the cases collected by Drs. Bull and Barton, who have each recently reported a success in the operation, were analyzed. Out of the twenty-five operations of this kind that have been collected, there were ten deaths or forty per cent. of mortality, a rate not altogether due, as some might justly think, to the inexperience of the operator—for Loreta himself, in 1887 and 1888, resorted to this procedure seven times with two deaths. This mortality was very high, and even though brought down in the last twelve published cases to 25 per cent., it presented such a risk, that if another way of accomplishing the same thing could be found it should, of course, be used. The re-contraction that follows or may follow the operation of stretching, though much less than was expected from the analogy of strictures thus treated elsewhere, must not be cast entirely aside from the consideration of this part of the subject. Loreta himself had encountered the re-contraction three times, in two of which a second operation was resorted to. However, it may be said in behalf of the stretching operation that one of the causes of death, to wit, hemorrhage, and, perhaps, others, can be avoided not only by more gradually conducting the dilatation, but also by refraining from stretching the pylorus as far as Loreta directs, as it is becoming apparent that this has been carried to a too great degree, and that a separation of two inches attained by the surgeon will suffice, instead of three inches, as Loreta advised. The fact of this stenosis being sometimes a prodrome of malignancy should also be borne in mind.

Reverting, however, to the mortality of the operation itself, an investigation of the results of gastro-enterostomy in the non-malignant strictures of the pylorus has shown sufficient evidence of the superiority of this operation in the latter respect to warrant its further adoption. Rockwitz, for instance, has given in his collection of 29 gastro-enterostomies 7 cases (to which can be added 1 of Mikulicz's and 1 of Hahn's, or 9 in all) where this operation was resorted to, in non-malignant stenosis, with but 1 death—that is to say, with but 11 per cent. of mortality. These operations were done under the old method, requiring on an average from two to two and one-half hours for their performance and the insertion of sixty to eighty stitches. It was also proven by these operations that the nutritive conditions were amply preserved in a successful gastro-enterostomy, and that the necessary interference with the flow of food material from the stomach to the point where the small intestine had been tapped resulted in no evil. The mortality of gastro-enterostomy for cancerous stenosis was then presented to lend proper force to the clinching of the argument brought forward. It amounted in twenty-four cases to 42 per cent.

Since Senn, of Milwaukee, has taught the use of decalcified bone-plates to secure, with the least amount of suturing, the apposed peritoneal surfaces when an opening is to be made between two portions of an intestine, or, as now in point, between the stomach and the intestine, time, so largely important in abdominal operations, is greatly saved. Under this method, or some modification of its technique, and notably in the material with which the opposing plates have been made, eleven cases of gastro-enterostomy for cancer have been reported, and with the remarkable result of but one death (McBurney's case), where the operation was resorted to when the patient was nearly moribund, or a mortality a little over 9 per cent Remarkable, because it is to be contrasted with the 42 per cent. from the old operation. Even a better result is to be expected in the less deteriorated condition of a patient suffering from starvation alone, as in a simple stenosis, and not starvation and disease combined, as in a cancerous stenosis.

Dr. Weir's operation was done under ether, the stomach having been previously, and for several days, washed

out with a boro-salicylic solution, and the peritoneum opened by a four inch median incision running from the umbilicus upward. As soon as the peritoneal cavity was reached, the finger and thumb of the right hand were introduced, the omentum and large intestine pushed up out of the way, and the vertebral column felt for, which guided to the pancreas, and thence passing from right to left, the end of the jejunum was hoped to have been seized as Hahn suggests. But this endeavor was not crowned by success, which apparently justified the statement of Luca, based on his experience of eight cases, that it was more often missed than secured by this procedure. So the advice of the last-named surgeon was followed, not to delay long in searching for the required portion of the bowel, but to draw out a loop of intestine, and either by comparing the two ends of the same and following the smaller portion, or by applying Nothnagel's salt test with its ascending peristalsis, and acting accordingly. Both the methods failed, and the predetermined intent of the operator not to spend much time in this search, nor to disturb the parts to any great extent, was carried out, and the plan practised with success (of eight cases and one death) by the same surgeon, of seizing any loop of small intestine with a long enough mesentery, to allow of easy apposition to the wall of the stomach, was followed. The loop was withdrawn from the peritoneal cavity, and also a portion of the stomach close to the gastro-colic fold. The two peritoneal surfaces were first sewn together by a continued silk suture, to correspond to the posterior edge of the catgut rings when inserted, as after the application of the rings this suturing would be more difficult to accomplish. The small intestine was then opened opposite the mesenteric attachment for a distance of two inches, the hemorrhage was arrested by temporary clamp pressure, and an elongated Abbe's ring inserted and held *in situ* by six sutures carried through the wall of the bowel about one-quarter of an inch from the incised edge. The stomach was then opened to a corresponding extent, nearly four inches from the pylorus (a little further from this point than was intended), and its ring similarly introduced and fixed *in situ*, and the various sutures tied in pairs, beginning with those on the deepest side and alongside the first applied row of peritoneal sutures. Finally, a continued suture, beginning where the last one left off, was carried around the anterior surface, and secured everything tight and snug.

This secondary suture was of value in two ways. At one place the rings failed to hold in the inverted peritoneum and showed the divided mucous membrane, which condition has been occasionally noticed in the use of the broader decalcified bone plates. The outer stitching remedied this at once. Furthermore, the stitching was carried some distance beyond the line of the included rings, especially toward the pylorus in order to aid in preventing the formation of a spur in the small intestine as it dragged downward. The opening was made purposely large to avoid ill effects should such a spur be formed. The examination made outside the stomach during the rapid search for the pancreas showed a moderately enlarged hard pylorus and from within the viscus its opening was about the size of a lead-pencil and of a gristly feeling. The operation from the opening to the closing of the peritoneum took thirty-five minutes. Total time forty-five minutes—from skin incision to closure of the same. At the end of the operation patient was in good condition. During the operation only the loop of intestine and the portion of stomach were outside the abdominal wall, the peritoneal cavity being shut off by antiseptic compresses and sponges.

NOTE BY DR. WEIR.—December 10th—five days after the operation—the patient's progress has been very satisfactory, only disturbed for a few hours at the end of first day by the appearance of albumin and sugar in large quantities in the urine. Neither had been found at various testings prior to the operation. These disappeared, the sugar first, in the next twenty-four hours. This may have been due to the anæsthesia, which I strongly doubt, or to the handling of the pancreas and left kidney, or possibly of the solar plexus. He began on the third day drinking water and beef-tea freely, the nourishment being aided by rectal enemata of peptonized milk and whiskey. Since then peptonized milk and raw eggs well beaten have been allowed him. A recovery seems assured.

MEDICAL PROGRESS.

Hypodermatic Injections of Salt Solution in Hemorrhage.—In the Dresden Lying-in Hospital the plan of introducing a large quantity of a solution of common salt under the skin has been employed with success in several cases of severe post-partum hemorrhage. The solution is of the strength of 0.6 per cent. (sixteen grains in a pint), and the quantity injected is somewhat less than a quart. The spots selected for the injection are the infra-clavicular and the infra-scapular regions. During the operation the swelling produced under the skin must be manipulated by a shampooing movement so as to disperse the liquid as much as possible. The water with which the solution is made must be sterilized by being well boiled. The advantage of the plan is that it can be easily carried out by any medical man, as it is far less difficult than transfusion and less dangerous. DR. MÜNCHMEYER considers the plan so suitable for private midwifery practice that he suggests that a little apparatus, which is made on purpose for it, should always be carried in the obstetric bag, together with the proper quantity of common salt. Boiled water can always be procured, and this, when cooled down to the temperature of the body, 98.6° F., will do very well, though in the hospital he employs a more carefully sterilized solution.—*Lancet*, November 16, 1889.

Removal of Gunpowder Stains.—According to the *Peoria Medical Monthly*, stains produced by the explosion of gunpowder may be removed by first painting the skin with a solution of biniodide of ammonium in an equal part of distilled water, then with dilute hydrochloric acid.

Insufflation for Whooping-cough.—

Pulverized benzoin	. . .	10 grains.
Salicylate of bismuth	. . .	10 "
Sulphate of quinine	. . .	2 " —M.

A pinch of this may be insufflated into the nasal cavities every few hours.—*Lyon Médicale.*

Pills for Metrorrhagia.—

Pulverized ergot	75 grains.
Subcarbonate of iron	75 "
Sulphate of quinine	15 "
Extract of digitalis	7 "

Mix and make into fifty pills, of which two may be taken three times daily.—*L'Union Médicale*, Nov. 7, 1889.

Parasiticide Ointment.—

Salicylate of mercury	16 grains.
Vaseline	1 ounce.—M.

This makes not only an excellent ointment against the parasitic skin diseases, but against eczema, pityriasis, and syphilitic vegetations.—*L'Union Médicale*, Nov. 7, 1889.

Prescription for Toothache.—

Arsenious acid	15 grains.
Muriate of cocaine	15 "
Crystallized menthol	3½ "
Glycerin	2 drachms.—M.

A pledget of cotton moistened with this and placed in the cavity of the tooth will quickly check the pain.—*L'Union Médicale.*

Treatment of the Acute Stage of Eczema.—In the *Practitioner*, DR. MACKINTOSH makes some valuable suggestions on the treatment of eczema in the earlier stages. The first thing to insist upon is that the patient must not wash the affected part at all, though in eczema of the head and face the corners of the eyes and angles of the mouth may be touched lightly with a small piece of soft sponge made damp with cold water and immediately dabbed dry. Coffee, strong tea, and alcoholic drinks should be forbidden. The second essential is to keep the bowels freely open. In the case of children, mercury with chalk, rhubarb, and bicarbonate of sodium, a grain of each, taken as required every second or third night, will answer every purpose. In adults, salines hold the first rank, and sulphate of magnesium is by far the best of all purgatives. Three drachms should be taken an hour before breakfast, though it often acts as well if taken one hour before any other meal. The great desideratum is an appropriate external application, and the following acts in many cases with marked rapidity:

Subnitrate of bismuth	℥ij.
Oxide of zinc	℥ss.
Carbolic acid	♏xij.
Glycerin	℥jss.
White vaseline	℥vj.—M.

If there are much tingling and irritation at night, the following will be found useful, applied with a camel's-hair brush:

Subnitrate of bismuth	℥j.
Carbolic acid	♏xij.
Glycerin	℥iv.
Rose water	℥iv.—M.

—*London Medical Recorder*, November 20, 1889.

The Treatment of Herpes Zoster.—DR. DUPAS, of Lille, recommends, for the abortive treatment of herpes, the application of ninety per cent. alcohol, or a solution either of two parts of resorcin, one part of thymol, three parts of menthol, or two parts of tannin, in one hundred parts of ninety per cent. alcohol. A compress should be saturated with one of the solutions, bound upon the diseased part, and covered with an impermeable material. The dressing should be frequently renewed. If either of the above solutions is painful, cocaine may be added. Under these applications the element of pain is diminished often in a few hours. If the disease has already reached the stage of suppuration, the vesico-pustules and pustules dry up rapidly, and no new ones appear.—*Journal of Cutaneous and Genito-Urinary Diseases*, December, 1889.

Solution for Blepharitis.—

Sulphate of zinc	15 grains.
Rose water	2 fluidounces.
Distilled water	5 " —M.

A compress of soft linen or a small sponge is to be soaked in this solution and placed over the affected eye.—*L'Union Médicale.*

Prescription for Acne.—

Naphthol	10 parts.
Precipitated sulphur	50 "
Lanolin	25 "
Green soap	25 " —M.

This should be thinly spread upon the skin, rubbed off in fifteen minutes, and the part dusted with talc.—*London Medical Recorder*, November 20, 1889.

Prescription for Scabies.—The following mixture is recommended as an efficient application in scabies:

Creolin	1 part.
Peruvian balsam	20 parts.

—*London Medical Recorder*, November 20, 1889.

The Treatment of Endometritis.—The local treatment usually adopted by Dr. Mundé in endometritis without hyperplasia of the mucous membrane is as follows: If necessary, the os is dilated; the cavity of the uterus is then thoroughly mopped with a 50 per cent. solution of chloride of zinc, the applicator being introduced several times in order that no portion of the endometrium may escape cauterization. A cotton plug covered with vaseline is then inserted into the uterine cavity, and an iodoform tampon placed over the cervix. After this the patient is put to bed, with an ice-bag upon the hypogastrium. In two days she is allowed to get up, the tampons are removed from the uterus and vagina, and lukewarm douches of a 2 per cent. carbolic solution given twice daily. In a week or ten days, the sloughs having separated from the endometrium, an application of chloride of zinc solution, 20 grains to the ounce, is again made to the cavity. The carbolized douches are continued, and when the discharge decreases in amount, gelatine-coated pencils, containing 5 grains each of iodoform and alum, are inserted into the uterus.—*Annals of Gynæcology*, November, 1889.

Iodoform Gauze in Post-partum Hemorrhage.—Dr. O. Piering, assistant in Prof. Schauta's obstetric clinic in Prague, has published his experience in the employment of Dührssen's plan of plugging the uterus with iodoform gauze for post-partum hemorrhage due to an atonic condition of the organ. Dührssen recommends that, when

post-partum hemorrhage comes on, the bladder should be emptied, and forcible friction, intra-uterine irrigation with hot or cold water, and hypodermatics of ergotin employed; that if the hemorrhage still continues, the cavity of the uterus should be filled with iodoform gauze, the irritation produced by this setting up active and permanent contraction. The method has, according to Dührssen, the advantages of great certainty, complete harmlessness and facility in its performance. Olshausen, Veit, and Tehling, however, say that the contraction set up is not always permanent, and that the method is not so free from danger as Dührssen believes. In consequence of these conflicting views, Dr. Piering resolved to give the method a trial, and he has recently detailed several cases in which it was employed with complete success. In no case was harm done by it. He advises that resort to the plug should not be too long delayed, and prophesies an important future for iodoform gauze in post-partum hemorrhage.—*Lancet*, Nov. 9, 1889.

Treatment of Tuberculosis of the Testicle.—DR. VERNEUIL, in the *Annales d' Orthopèdie*, states his belief that iodoform inhibits the development of tuberculosis, and his experience leads him to think that the removal of one testicle often gives an impetus to the disease, and causes it immediately to attack the other. He therefore reserves the extirpation of the testicles for cases in which the lesions are in an advanced stage. In less severe cases he prefers interstitial cauterizations, and searches for the nodules, which he pierces with a pointed thermo-cautery. Into the cavities thus produced he inserts a pencil of iodoform which is allowed to remain. He considers that this method of treatment gives satisfactory results, and rarely excites any increase of the diseased action. It also saves the testicle, or at least appears to do so, and many patients attach great importance to the preservation of their sexual organs. It is not uncommon for castration to be followed by suicidal ideas.—*Provincial Medical Journal*, November, 1889.

Bromoform in Whooping-cough.—DR. STEPP, of Nürnburg, publishes in the *Deutsche medizinische Wochenschrift* his results in the treatment of pertussis with bromoform. The drug has, according to the author, no ill effects, and his numerous observations have proved that, as used by him, it is non-poisonous, and that the pulse and temperature remain unaffected by it. Children are ordered from five to twenty drops during the twenty-four hours in very frequent doses. The solubility of bromoform in water being very slight, the mixture requires the addition of alcohol. Stepp has administered bromoform in about sixty-five cases of whooping-cough, the children ranging in age from six months to seven years. The longest time required for a complete cure was four weeks. Symptoms of pulmonary catarrh in all these cases were entirely absent, or else were slight and soon disappeared. No complications existed in any of the cases observed by the author, but Dr. Goldschmidt has treated several serious cases of whooping-cough complicated with pneumonia, completely curing them in a fortnight by the daily administration of bromoform. Dr. Stepp concludes from his observations that under bromoform treatment bronchial catarrh and lobular pneumonia do not generally occur, and that where they exist at the commencement of the treatment, resolution takes place at an earlier period than under other methods of treatment. His observations show also that the dose of bromoform must be in direct proportion to the severity of the affection and the age of the patient. The system does not seem to become accustomed to the drug, which has, moreover, considerable prophylactic power, so that the other children of a family in which whooping-cough in an advanced stage already exists can be shielded from the disease by being given bromoform. *Therapeutic Gazette*, November 15, 1889.

The Staining of Gonococci.—A useful method of staining gonococci, as described in the *Medical Press and Circular*, is as follows: "After the cover-glass is spread with a thin layer of the suspected substance, it is passed three times through a flame. It is then allowed to remain from five to ten minutes in a saturated solution of methyl-blue in carbolized water, after which it is washed in pure water, and dipped for a moment in a weak solution of acetic acid (dilute acetic acid five minims; distilled water five and a half drachms), and again washed in water. As the acetic-acid solution decolorizes other organisms more rapidly than the gonococci, the latter will remain a distinct blue.—*Medical Record*, November 23, 1889.

Chloroform Water in Whooping-cough.—DR. SCHILLING has recently treated sixty-one cases of whooping-cough with inhalations of chloroform water, after the method of Salkowski, his results being excellent. The patients varied in age from ten weeks to twelve years. His methods and results are thus described: Into the boiler of a steam atomizer is placed one tablespoonful of water to which are added two drops of pure chloroform for each year of the child's age. The inhalations are practised four times daily, each inhalation being continued until the solution is entirely vaporized. If there is no improvement by the eighth day, the chloroform is increased to three drops for each year of the patient. In most cases the disease ceases to progress after a few days of treatment, and by the eighth day the patient begins to improve. Nearly one-half of his cases lost the convulsive element of the disease in about two weeks, or, more accurately, four cases terminated favorably in one week, twenty-eight in two weeks, twenty-one in three weeks, and eight in four weeks. His former experiments with inhalations of carbolic acid gave much less satisfactory results. Antipyrin he has found of use in some cases but valueless in many more.—*Therap. Monatshefte*, October, 1889.

Explosive Mixtures.—PROFESSOR ROBERT calls attention to the following explosive mixtures: Chlorate of potash mixed with charcoal dentifrice powder may explode, even in the mouth. Chlorate of potash mixed with catechu, or with tannin, explodes with friction, even if glycerin is added. Chlorate of potash and phosphate of sodium explode while mixing the powder. One part of chromic acid mixed with two parts of glycerin explodes immediately. Iodine and ammonia should never be mixed together, as they are extremely apt to explode. Bromine and alcohol, forming the bromide of ethyl, often explode. Picric acid, reduced to powder, explodes when mixed with any other substance.—*Weekly Medical Review*, November 16, 1889.

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THE CO-EDUCATION OF THE SEXES.

WE present to our readers in the present number of THE NEWS the carefully thought-out opinions of several eminent gynecologists and neurologists upon this important subject. These expressions of opinion have been obtained in response to a series of questions; they therefore contain the views of the writers arranged in a systematic manner, and nearly in parallel lines of treatment. But the conclusions are strangely at variance. They represent, in point of fact, every shade of opinion from a reasonable advocacy, through hesitating and qualified endorsement, to strenuous opposition. As the subject is, in its present phase and notwithstanding much tentative work already done, a new one to many earnest thinkers, this want of agreement among men well qualified by professional training and broad experience to discuss it, is of peculiar value as indicating the necessity for deliberate consideration on the part of those now active in the movement in favor of co-education in institutions devoted to the higher general and technical training. It shows that there is much to be honestly said upon both sides of the question. Bitter partisanship in a cause like this is, on the one hand, a waste of energy; while, on the other, a narrow conservatism cannot long retard, much less arrest, the progress of that social evolution which to-day leads the van of civilization. What is now most needed, is reform within educational institutions; the elimination of injurious traditional methods, such as the cramming system, competitive examination, grinding routine which neither recognizes nor makes allowances for differences of capacity and temperament among students, and the bettering of the means by which the student and the instructor may be brought into closer personal relationship, with the advantage to the former of having that which is best in him developed, and that which is wrong set right, and to the latter the advantage of doing work of a high order, instead of perfunctory drudgery. This means education as a fine art. It is coming to take the place of older methods at higher levels, just as at the lower the kindergarten system has replaced the *a*, *b*, *ab's* and the dunce-cap, and technical schools for artisans the apprentice system. The education which makes allowance is not so hard for women as compared with men, as the present system is for the feebler man as compared with his sturdier and more phlegmatic fellow. Our experience in the higher education of woman is, as yet, too limited to warrant positive conclusions as to its effects upon the mental and bodily health. It is, however, increasing steadily, and the facts now appear to be in favor of the view that there is nothing in thorough training, properly conducted, that is of itself adverse to the highest physical well-being of either sex. If that training is to be given women side by side with men, it will necessitate numerous readjustments of existing educational methods, readjustments that will rebound to the advantage of all concerned.

SPECIAL ARTICLE.

CO-EDUCATION AND THE HIGHER EDUCATION OF WOMEN.

A Symposium,

BY PROFESSORS WILLIAM GOODELL, M.D., T. GAILLARD THOMAS, M.D., JAMES R. CHADWICK, M.D., S. WEIR MITCHELL, M.D., M. ALLEN STARR, M.D., AND J. J. PUTNAM, M.D.

THE subject of co-education and the higher education of women is just at present attracting so much attention in this country and abroad from a purely educational point of view but with utter disregard to the physical side of the question and the systemic influences exerted thereby, that we have thought a symposium of the opinions of medical men, eminent in their special lines of work, of importance and interest. Importance because of the effects upon

the well-being of the community both moral and physical, and interesting because the experiment is being so widely tried at present at Harvard, Columbia College, the University of Pennsylvania, and other centres of learning, as well as those institutions especially devoted to the female sex, such as the Vassar, Wellesley, and Smith colleges.

The opinions given have been based upon the following outlines:

Gynecologists.—In your opinion, does the higher education of women produce changes in the general or generative system of sufficient frequency or magnitude to lead you to disapprove of movements looking to improved mental training in females?

Do you think that co-education is worse for women than separate teaching methods, either by reason of the danger of excessive competition or other causes?

Do you think that far advanced intellectual training interferes with childbearing, directly or indirectly?

What troubles have you found produced, so far as the uterus and ovaries are concerned, in women from such endeavors?

Man for woman, do you think the average girl going to college will come out as mentally and physically active as the average man?

Neurologists.—In your opinion, does the higher education of woman, that is, a college training, produce changes in the nervous system of sufficient gravity to make the general application of such a course a procedure in any way productive of evil results to the sex?

Do you think women are qualified to imbibe the same amount of knowledge as men with no more expenditure of nerve force than men?

What maladies have you seen more frequently in females, as a result of hard study, than you have in males?

Do you think that co-education is advisable from the standpoint of a neurologist?

Man for woman, do you think the average girl going to college will come out as mentally and physically active as the average man?

MR. EDITOR: Your five questions, short as they are, need for answers at least as many essays, and long ones, too; but as you ask merely for "opinions," I shall try to give mine categorically, and as briefly as possible:

1st. There is no question that many women, perhaps, indeed, most women, are intellectually fully as capable as men for higher mental culture. But such advanced education means prolonged education, and herein lies the danger. In young women prolonged confinement, prolonged brain-work, and prolonged intellectual rivalry are, in my experience, injurious to physical and sexual development.

The chief strain of reproducing the species falls on woman, and her share in this cardinal matter is complex, while man's share is single and simple. To this end she ovulates, she menstruates, and she conceives. For this end she bears the burden of gestation, of parturition, of lactation, and of maternity. For this great end she needs the utmost perfection of physical development. Therefore the growth and the well-being of her body should be, at least, as carefully looked after as the growth and well-being of her mind. It should be a co-education of body and mind, the one helpful to the other. But this *junctura callida*, this important harmony, is not well observed in female education, and our boarding-schools, public schools and female colleges are liable to become the hotbeds of forced and sickly girls. As a result, the chief skill of the milliner seems to be directed toward concealing the lack of organs needful alike to beauty and to maternity, and the cultured girl of to-day becomes the invalid mother or the barren wife of to-morrow, or she has all the natural human instincts partly, or indeed wholly, educated out of her. So commonly do I find ill health associated with brilliant scholarship, so often that she who wins an honor is a "victor who hath lost in gain," that one of the first questions I put to a young lady seeking my advice is: "Did you stand high at school?" At the present moment I have in my private hospital one such example: a girl of brilliant mind, whose previously rude health has been grievously injured by overtaxing her brain at one of our best female colleges. Nor is this case a single one. I have had many such; at one time, three ladies from the same college were in my hands.

Whether the fault lies more in the mode of education than in its quality, is yet to me in a measure an open question. But I cannot withhold the opinion that woman's dress must also play an important part in this result. Given one hundred young men "cribbed, cabined and confined" in corsets, or in the tightly fitting clothing which women ordinarily wear; to say nothing of several skirts hanging from the waist; and given one hundred young men clad in the every-day masculine attire, which is a blouse when compared with a lady's dress; which hundred, think you, Mr. Editor, would pass the less unscathed in health through a four years' curriculum at college, supplemented by a three years' professional curriculum?

Of course the monthly drain upon the system, together with its accompanying pains and lassitude, must also have its effect upon the female student. But I shall touch more at length on this factor a little later.

2d. For reasons which, perhaps, may be more sentimental than sound, I, personally, am opposed to the co-education of the sexes. Yet I am bound to confess that it seems to work well in those Quaker institutions with which I am familiar. It certainly does succeed in bringing about close attachments between the sexes, which often end in early marriages.

3d. I believe that in young, developing women, "far advanced intellectual training," as it is now imparted, does interfere not only with conception, but also with childbearing. For, of course, if I am right in my first answer, whatever stunts and enfeebles the frame, must interfere with one of the chief requirements of that fame. To the present system of education do I attribute much of the sterility and the infecundity of women, the absence of sexual feeling, the aversion to maternity, the too oft-n lingering convalescence from a first labor, which is frequently the only one, and the very common inability to suckle their offspring.

I have sometimes been led to think that over brain-work tends not only to stunt the body and to contract the pelvis, but, by the law of evolution, to develop bigger headed offspring, or at least offspring with heads relatively disproportioned to the pelvis of the mother. But perhaps this opinion belongs to the domain of transcendental medicine, and has no sound empirical basis for its support. I merely throw it out as a hint for others to work out.

4th. Before you, Mr. Editor, had asked me to answer your five questions I wrote a paper which appeared in the last issue of your journal. In it are remarks so pat to this, your fourth question, that I shall take the liberty of quoting them:

"By breaking down the nervous system the brain-cramming, the intellectual rivalry, the buckram, proprieties, and the unwholesome confinement of our boarding-schools and public schools, breed a host of sickly girls, who swarm in every class of society. Manifold diseases, both functional and structural, date from the recitation room. They are mostly of a uterine complexion, for at that time of life the sexual sphere dominates, and the brunt of the nervous and the vascular disturbances which form the essence of nerve-exhaustion, falls on the most exacting organs—the reproductive. Hence these suffer from neuralgic pains, or from congestion and the lesions coming from prolonged congestion." . . . . "So common is it for girls in boarding-schools to suffer either from amenorrhœa or from irregular menstruation, as to create a general impression in the community that in these schools some drug is secretly given in the food in order to lessen the laundry work. In one school of great repute so many girls missed their monthly periods, that the family physician of several of them wrote to me asking whether it were possible, as his patients averred, 'that, as their clothes were laundried in the building, something was given in their food or in their drink to produce the effect, for the purpose of saving the laundress the disagreeable task of washing the napkins.' My reply was that if laundresses were acquainted with a drug that could arrest menstruation they knew more than the profession, and that his patients had lost their monthly periods—not from secret drugs, but—from loss of health, due to an unwholesome system of education."

In fact, the most common sexual disorders which I find in female students are menstrual derangements—viz., suppressed, irregular, or scant menstruation; occasionally profuse, and very frequently painful menstruation.

The next most frequent sexual troubles are spinal irritation, leucorrhœa, irritable bladder, pruritus vulvæ, painful ovaries, a bearing-down feeling, and various pelvic aches and congestions. But most of the so-called uterine symptoms are the protean ones of nerve-exhaustion, which is, after all, the bottom factor of the ill health of these girls, the uterine lesions being secondary.

5th. My previous remarks, Mr. Editor, should cover your fifth question. But, since you ask for a categorical answer, let me give you one: Without wishing to wear an illustration threadbare, let us compare the average male student with the average female student. Let us consider that in addition to the clogs and trammels of her dress she has, for several days in every lunar month, to forego her daily bath, to curtail her customary exercise, and to lose some ounces of blood, because she is "*unwell*"—as women from their feelings and sensations aptly call themselves at such times. She, then, will be nervous and irritable, perhaps hysterical, and, most probably, worn out by headache, backache, or groinaches, and oppressed with great lassitude. Yet, for all t[illegible] she has a spark of ambition—and I take it tha[illegible] average girl has—she must go on with her studies to keep up with her class. Now, I leave it to your common sense, Mr. Editor, and to the common sense of the many readers of your excellent journal, which one would come out of a four years' curriculum the more "mentally and physically active." Would it be the female student, handicapped by her dress and her monthly periods? or the male student, unhampered by female panoply or by monthly flux?

Yours truly,

WILLIAM GOODELL, M. D.

Gynecologists.—In regard to the first question my reply is: No, it does not, by any means. A certain number of women are so organized, physically and mentally, as to render them incapable of undergoing

the training which attaches to the higher order of education exactly as a certain number of race-horses are incapable of undergoing the training to fit them for their work; or as a certain number of prize-fighters are incapable of undergoing the training which would make them able to perform the antics of the prize ring. As a general rule, I would answer the question in this way: I do not think that the higher education of women produces changes in the general or generative systems of sufficient frequency or magnitude to lead me to disapprove of movements looking to improved mental training in females.

I see no great danger connected with co-education, when properly conducted, either for women or for men.

No. In very exceptional cases far advanced intellectual training might do so. As a general rule, I feel sure that it does not.

In the exceptional cases mentioned I find a tendency to irregular ovulation; to painful menstruation, to nervous disorder, and to consequent blood impoverishment; but, as before stated, such results are very exceptional. T. GAILLARD THOMAS.

It is my opinion that the highest education of women tends to improve their general health, and consequently their capacity for childbearing, in that it develops the reasoning powers at the expense of the emotions, and thus gives them greater power to keep the latter in proper subjection. It matures their judgment, thus rendering them more reasonable and prudent in the various relations of life.

It gives them—especially if the higher education leads, as it should, to definite careers in life other than matrimony—spheres of interest extraneous to their own bodies or personal affairs.

These opinions, based upon *à priori* considerations and personal experience in a medical practice exclusively among women, receive partial corroboration from the meagre health statistics of women graduates as yet available. Carroll D. Wright has shown[1] that among 705 female graduates of colleges "20 per cent. show a deterioration in health, 60 per cent. no change, and 20 per cent. an improvement." From these and other figures he concludes that they "do not seem to show, as the result of their college studies and duties, any marked differ ence in general health from the average health likely to be reported by an equal number of women engaged in other kinds of work."

So far as I know, there are no sufficient statistics as to the health of women after graduation, but if knowledge and trained understanding are of any value to men in fitting them to lead more healthful lives, as is universally admitted, how much more important is it likely to be to women! A development of the reasoning powers in women will, I believe, make women healthier through life, render them wiser in the care and education of their children, and fit them more fully to be in companionship with husbands and with men generally.

I see no great danger of excessive competition between the sexes in colleges conducting co-education, but if it were to arise, I think it would be averted by the skilled supervision now exercised over the health of students in many colleges, which should be introduced in all.

As Dr. Mary Putnam Jacobi shows[1] "that in our existing social conditions, 46 per cent. of women suffer more or less at menstruation," it is evident that in a system of co-education women are handicapped by the manifest necessity of abstaining from severe or sustained mental work for several days in every month. How provision can be made to meet this physical necessity without overtaxing girls during the rest of the month is not clear. Yet no evidence of this detriment to girls in any of the colleges, in which co-education prevails, has yet been made public, and it is evident that the same or even greater danger exists in the last two or three years of the course in the preparatory schools, when the menstrual function is being established.[2]

For these reasons I am in doubt as to the expediency of co-education in colleges.

I have no conclusive evidence that a specially intellectual training has any influence upon childbearing, either directly or indirectly, but my impressions are that it is rather favorable than otherwise.

I have not found any prejudicial influences exerted directly upon the uterus or ovaries by study, and only indirectly, in participation with the derangements of the general system, where the study has been irrational or excessive.

I think it fairly established by experience, so far as it has accumulated, that the average girl, on graduating, is as active, mentally and physically, as the average man, though not as strong muscularly.

JAMES R. CHADWICK.

Neurologists.—I beg leave to answer these questions without reference to their order. I merely state, without defence, what I think on this weighty subject. Elsewhere, in three books,[3] I have said my

[1] Sixteenth Annual Report of the Massachusetts Bureau of Statistics of Labor.

[1] The Question of Rest for Women during Menstruation. New York, 1877, p. 232.

[2] I have shown in the North American Review for December, 1882, that the average age of first menstruation in Americans is fourteen years, four months, and five days.

[3] Wear and Tear, or Hints for the Overworked. Lectures on Nervous Diseases; Doctor and Patient.

say, and, save as to one point, have said it in full. As to this one, I can in a medical journal speak with frankness and ease; in secular journals no one can do justice to this subject.

I think that women would be better in many ways for the higher education, if it come late enough. I believe that they have a right to it, if they ask for it, just as they have the human right to study medicine or law, irrespective of what men may think of their fitness to practise either.

I do *not* believe that constant hard study is as free from evil for the woman as for the man. She is less fit for competitions than man, and her more emotional nature, which qualifies in some directions, in a measure disqualifies in others. I speak now of the average woman. I believe that selected women will stand the stress of continuous intellectual work; for the mass it is dangerous, and, probably, in the long run, sexually incapacitative to a varying amount. The male, overworked and worried, suffers a variety of neurasthenic breakdowns; the woman overworked, or too continuously worked, with the addition of the emotional distresses or excitements to which her nature more largely subjects her, is more liable than he to hysteria, or hysterical hypochondriasis, as well as to neurasthenia.

Your final question is difficult. I believe that of one hundred boys who study hard and well and live the average college life, fewer will be hurt than will be of one hundred women of like age and under like conditions. The reasons for this belief I have given elsewhere.

It is fair to say, however, that at many of the girl-colleges, of late years, a fortunate proportion idle along, or, like many boys, take it easy. Then the statistics are worthless. All concerned are tacitly pledged to accept and defend the man standard of work, and so it is hard to know the full truth. What I believe rests on cases I have seen and what they have told me, and concerning these I have long since said my say.

I reserve No. 4 for the last. I do not believe in co-education, and would abolish it if I could.

The sexes run along in childhood intellectually, not very far apart. At from thirteen to sixteen the girl becomes more decisively the woman than does the boy become a man; more serious, more conscientious, and more suddenly a complete being. The female, for reasons moral and developmental, up to a certain time, surpasses him in intellectual quickness and in power to acquire knowledge. I speak now of groups of either sex who are in reasonable earnest. Somewhere after twenty (no one can set an exact date) the average man increasingly surpasses the woman in persistent energy. Her defect as to this exists from puberty, but is emphasized in her contests with man when he acquires manhood's motives for constant labor, and puts out his strength. I think it unfair to both sexes to bring them into mental competition.

I believe co-education abominable for many reasons, but, for physiological reasons, I think it foolish and absurd; as for others, I think it needless. You put a woman—a girl—in a class with men—or lads. Her wants and her menstrual disabilities she is forced by modesty to hide, or control, or defy. If in women's colleges the silently accepted standard of health and endurance is that of man, how must it be where the groups are of both sexes, and the effects of shame are intensified by the fear of a masculine smile.

I have put all this tersely, as was needed. It is hard to do justice, however, in such brief compass. We speak from the standpoint of the male physiologist. We know the evil, but we do not enough see how painfully stringent are the motives which urge the woman into competitions she is unfit for. The higher education is her right, in some sense, and let us do all that is possible to relieve it of what makes it hurtful to so many.

As to co-education, it seems to me utterly wrong. If any one supposes the curve of endurance as to intellectual labor does not drop with the menstrual period below the continuity of the male capacity, they can know very little of women. If any one believes that ambitious girls put in competition with boys are not thus influenced to disregard in their eagerness the monthly reminder of possible motherhood, and, too, some other matters, they can know little of human nature.

We have been presumbly discussing sexual groups of healthy people, but it is a sad fact that the standard of health in young men and women, taken in the mass, is sadly different. Of 100 average girls between the ages of fourteen and twenty, far more will be ailing than is the case among 100 average lads of like years. This is a matter which the physican, at least, cannot disregard in discussing education in relation to health; but as to this I have also written much, and let those who doubt the conclusions reached read what I do not care to repeat here, or let them study the papers of Romanes, Mrs. Lynn Linton, and Dr. Edward Clarke.

S. WEIR MITCHELL, M.D.

A higher education, that is to say, a college training, if properly pursued, does not seem to me in any way productive of evil results to either sex. On the contrary, by stimulating mental activities; by opening up new intellectual interests; by broadening individual experiences and views of life, it is decidedly advantageous to both sexes equally. The demand everywhere made at present is that woman shall be companionable to man, and this can be

possible only when the range of mental activity in both is on a common plane, an end to be best attained by opening to both the same educational facilities, and encouraging their pursuit. Girls devote so little time to culture after leaving school that the better their education is at the outset the better for the girl in the end.

Given a man and woman of equal natural abilities, I think there will be very little difference in the amount of knowledge imbibed under the same circumstances with similar expenditures of nerve force. The rapidity of observation may be even greater in the case of woman, as has been shown by certain investigations regarding the personal equation. In respect to the kinds of knowledge which are derived from observation it is possible, therefore, that the woman would have the advantage. But in respect to the power of continuous attention it is my impression that man would have the advantage. Observations upon general audiences have shown that there is more apparent inattention on the part of women, even when interested in the subject being presented, whether music, play, lecture or sermon; and since for imbibing the highest kinds of knowledge close attention is requisite, man might have the advantage here.

I do not think that hard study is a frequent cause of disease. It is the anxiety attendant upon close competition. It is the emotional strain in connection with efforts to attain success, rather than the study alone, which is the usual cause of nervous prostration. If competition can be eliminated in education the process could never be accused of producing disease. Fear of failure in examinations, eager desire to excel in competing for honors or position, or prizes, and the attendant emotional strain, is, in my opinion, the chief cause of maladies usually ascribed to over-study. Under such emotional strain I think women give out more quickly than men, and from the effects they recover more slowly. This I should not be willing to ascribe entirely to inherent weakness on the part of the nervous system of women, but, in part, to their very common neglect of the many precautions which prevent such a break-down. I refer to proper diet, sufficient exercise, a careful regulation of digestion, and the relaxation from continuous work which should be enforced at certain periods.

I do not think co-education is advisable, because it increases the amount of competition in study. Some women can compete successfully with men, but in every college where co-education exists the number of men is much larger than that of women, and hence the probability is that there will be several men of talent for every woman of talent. In all these colleges the competition will be greater for the women than in the colleges limited to her own sex. The stimulus to competition will also be greater than in a woman's college, for a talented, ambitious girl will try the harder to surpass her competitors if they are men. Hence, for the girls of ability, the nervous strain of co-education is likely to be too great for their good. For girls of no special ability, who have to be forced to study, the opportunities for social diversion in a college for both sexes are so great as to interfere to some extent with their study and tend to distract their attention from their work. Lastly, in a girl's college, allowances for illness will be more readily made and more freely demanded by the girls than in a co-educational institution. While I believe, therefore, in opening a college education for women, I believe it should not be on the co-educational plan.

I see no reason whatever why mental and physical activity should be impaired in a girl's college, and I think the college girl will come out as strong as the average man in these and other respects.

M. ALLEN STARR, M.D.

I interpret the first question as asking whether the injurious effects of college life, as regards health, overbalance the beneficial effects, and in replying shall consider: 1, to what influences women who seek a higher education are exposed, for good and for evil; 2, how women may be classified in relation to these influences; and what would be the effect of the "general application" of such an education.

Statistics as to the effects of a collegiate course upon the health of women, based on sufficient numbers to be of value, exist, so far as I know, only in the report of the Special Committee of the Association of Collegiate Alumnæ,[1] adopted as a part of the Sixteenth Annual Report of the Massachusetts Bureau of Statistics of Labor.

This gives information concerning the health of 705 students before, during, and for a number of years after their college course.

It appears that the majority of the students kept the good or fair health with which they entered college, and that almost the entire 705 had led active and useful lives since graduation; the greater part being engaged in the exacting labor of teaching.

I believe the principal causes of ill-health met with in women's colleges, to be, anxiety about outside matters, mainly concerning home affairs; emotional excitement attending severe or prolonged study of competition for honors; and the physical strain of overwork.

Another unfavorable influence is, that the students—who have thus far been almost entirely of a peculiarly zealous and ambitious type—often stimu-

[1] Boston, 1885.

late each other to a degree that creates an atmosphere of nervous tension.

As regards this danger, the colleges would doubtless gain by the admission of more pupils of the class who would go rather as a matter of course, and who would not feel that they had so much at stake, as do the more serious and over-eager students of the earlier and present days.

For similar reasons, women in co-educational colleges gain through contact with their more phlegmatic associates.

Lastly, inattention to hygienic matters is an important cause of ill-health, but in this respect women's colleges are steadily improving and are likely to reach a high standard of excellence.

At many of them, as at Wellesley, a certain amount of physical exercise is prescribed, and at one college[1] an examination in this branch is required for a degree.

In deciding to what extent these influences are liable to be injurious, it is advantageous to classify the students.

There is one large class who are amply strong enough to perform their college duties, and as well equipped as their male colleagues for receiving and transmitting further the many ennobling influences of college life.

Then, there is a smaller class who are so handicapped by constitutional weakness or external conditions, that they are very likely to lose their health in attempting to do college work.

Finally, there is a large number who are liable to break down under college strains, just as they are liable to break down from hosts of other strains. Quick and ambitious, but over-sensitive and introspective, they form the neurasthenic class, and the study of the effects of college life upon them is of especial interest to the physician.

I believe that there are many young women of this temperament, and, also, many who would otherwise lead aimless lives at home, who would be safer, both at the time and afterward, for the sobering and bracing effect of a well-governed, wide-awake college, where they might be trained in such a way that they would be enabled to take an effective part in the world outside, or the world of their own homes.

Every physician who has to give advice to neurasthenic patients often seeks for them many of the very influences that the college should, and to a considerable extent does offer—a well-ordered routine as a substitute for an irregular series of fatiguing and listless efforts, mental and practical work to offset emotional excitability, respect for industry and accomplishment, belief in the power of training, a safe introduction to a broadening circle of interests.

It is a noteworthy fact that the question is rarely asked, except *apropos* of athletics, how the health of men is affected by their college life. It is taken for granted (and I believe correctly), that the four college years are, what they were intended to be, a period peculiarly favorable to the orderly, systematic development of mind and body, and those who fall out are assumed to have been weakly at the start, or to have acted with unusual folly.

I believe that when the idea becomes more familiar, a similar training, properly adapted to their needs, will be considered equally good for women.

Women are constantly doing more and better work in education, in the public charities, in certain of the professions, and even in municipal politics, and the alternative for them is to exercise faculties which have been strengthened by prolonged and systematic training, or, for the lack of such training, to work under a pressure that is a serious strain upon the health.

In regard to the question, "Do you think that co-education is advisable from the standpoint of a neurologist?" I may state that while I am not prepared to advocate collegiate co-education as a general system, yet I think it presents more advantages and fewer objections than are generally recognized. It has the merit of economy, simplicity, and accordance with American habits of social life, which, in most respects, have proved to work so well.

J. J. PUTNAM, M.D.

[1] The Women's College of Baltimore,

REVIEWS.

A CLINICAL ATLAS OF VENEREAL AND SKIN DISEASES. By ROBERT W. TAYLOR, A.M., M.D., Surgeon to Charity Hospital, New York; Late President of the American Dermatological Association, etc. Illustrated with 192 Figures and 48 beautifully colored Plates, etc. Parts VII., VIII. Philadelphia: Lea Brothers & Co., 1889.

THE completion of this monumental work is a subject of congratulation, not only to the author and publishers, but to the profession at large; indeed, it is to the latter that it directly appeals as a wonderfully clear exposition of a confessedly difficult branch of medicine. It sometimes happens in such enterprises that there is a glaring disproportion between the component parts of the work; that is to say, the text may be good and the illustrations poor, or the reverse may occur. In this instance, however, good literature has joined hands with good art with highly satisfactory results for both. It is scarcely necessary to make any extended review of the Atlas as a whole, since the separate parts have been duly noticed at the time of publication, but for the benefit of those who may be unaware of the general scope of the work some idea of the plan pursued in its composition may not be unwelcome.

There are altogether one hundred and ninety-two figures, many of which are life-size, and representing the highest perfection of the chromo-lithographic art, and scattered throughout the text are innumerable engravings. Quite a proportion of these illustrations are from the author's own collection, while on the other hand the best atlases of the world have been drawn upon for the most typical and successful pictures of the many different types of skin and venereal disease. We think we may say without undue exaggeration that the reproductions, both in color and in black and white, are almost invariably successful.

The text is practical, full of therapeutical suggestions, and the clinical accounts of disease are clear and incisive. We remember once to have read an article in the *American Journal of the Medical Sciences*, by the late Dr. Bumstead, in which he stated that the syphilographer was never a good dermatologist and *vice versa*, and we believe that he himself made little claim to a knowledge of cutaneous medicine. His own immediate successor and co-laborer is, however, an apt illustration to the contrary. Dr. Taylor is, happily, an eminent authority in both departments, and we find as a consequence that the two divisions of this work possess an equal scientific and literary merit. The last two, and concluding, parts illustrate skin diseases. The two most notable subjects treated of are xeroderma pigmentosum and lichen ruber and planus, both of which embody pictorially and otherwise a large amount of original work of permanent value and interest. The investigations of the author on the subject of xeroderma pigmentosum have long been known to dermatologists, and here, after a series of years spent in the observation of certain cases, we are finally presented with his completed and matured conclusions. The identity or non-identity of lichen planus and ruber has been and is a *questio vexata* among the best authorities, and we are glad to be able to say that in the pages before us, rich in illustration and comment, a considerable step has been taken toward its solution. We must certainly stand with the author in his belief that the two affections are entirely dissimilar.

We have already passed the limits allotted to a notice of this kind, and while we have nothing but praise for this admirable atlas, it must be said in justification that it is more than warranted by the merits of the work itself.

CORRESPONDENCE.

NEW YORK.

(*From our Special Correspondent.*)

To the Editor of THE MEDICAL NEWS,

SIR: The Sanitary Aid Society of this city, which during the last few years has been engaged in excellent practical philanthropy, has just opened a new night lodging-house on Division Street, in the heart of a crowded down-town tenement-house district, which is a model structure of its kind, unsurpassed by any similar institution in the country. It is five stories in height, four stories being devoted to dormitories, and offers every necessary comfort to lodgers. It can accommodate 110 inmates nightly, and for the sum of ten cents it furnishes each one with a clean bed, a night-shirt, a bath, a separate locker for clothing, and, if desired, a cup of coffee and a roll in the morning. The building has all the modern improvements in plumbing, ventilation, and closets, and is provided with iron stairs and fire-escapes, both front and rear.

The Sanitary Aid Society has been in existence only since 1885, but during that time it has furnished lodgings to more than 130,000 people, while it now has accommodations for 50,000 per annum. At the time of its organization it was deemed best to concentrate its efforts on some special district, as, with the limited pecuniary resources at its command, it would have been useless to attempt sanitary reforms in every part of the city; accordingly, it selected as the field where such reforms were most needed the Tenth Ward, where there was a population of 50,000 souls to but 1859 houses. The Society undertook an exhaustive investigation of the condition of these houses, and as an instance of the over-crowding discovered, it was ascertained that 258 human beings continuously resided on one lot twenty-five by ninety-five feet, containing a front and rear building. A campaign of reform was instituted, and a canvass from house to house, and from room to room, was made. The result was, that, by the following May, 300 of the worst houses had been cleaned out, a systematic work of cleansing, repairing, and drainage had been organized among landlords, lessees, and tenants, and twenty additional sanitary inspectors had been added by the Board of Health to its working force. In addition, a night lodging-house was built on sanitary principles, which for the past four years has been doing excellent work. In order to appreciate the benefits of these model institutions provided by the Sanitary Aid Society, it is only necessary to compare them with the ordinary cheap lodging-houses in the lower part of the city, among which, notwithstanding the strict surveillance maintained by the health authorities, several outbreaks of typhus fever have occurred in recent years.

Diphtheria is becoming increasingly prevalent in Brooklyn, and the records show that during the eleven weeks ending November 9th, there were 192 deaths from the disease, as against 118 during the corresponding period last year, and that with the exception of the last week in October, there has been a weekly increase in mortality over that of 1888. No special cause has been assigned for the prevalence of the disease, but there can be little doubt that it is very often contracted by children coming in contact at school with light cases of diphtheria, or with other children from infected houses. There is also good ground for the opinion held by some authorities, among whom is Dr. J. Lewis Smith, that the germs of diphtheria, having once been introduced into the sewers of large cities, meet there with conditions favorable to their development and multiplication, independent of the human subject; so that wherever the emanations from the sewers enter a dwelling they are liable to carry the specific virus of this disease.

Dr. Henry H. Duncan, a ship-surgeon in the service of the Pacific Mail Company, has brought suit to recover $60,000 damages from the city of Brooklyn. While on board the steamer "Colon," on his way to this port in June last, he was taken with remittent fever, and after arrival went to stay at the house of a friend, Captain Thompson, in Brooklyn. He claims that when already recovering, the report having been circulated that he was suffering

from yellow fever, the Brooklyn health officials decided that he had this disease, notwithstanding that Dr. Cyrus Edson, Chief of the Bureau of Contagious Diseases, New York Board of Health; Dr. Smith, Health Officer of the Port, and others, expressed a contrary opinion. Consequently, he was taken from the house at midnight, and sent on a tugboat to Swinburne Island, in the harbor. His treatment, he says in his complaint, was rough and unskilful, and would, if he had really been suffering from yellow fever, have caused his death. The vehicle which carried him to the dock was not an ambulance, but an old patrol wagon without springs; and while on the way to Swinburne Island he was kept on deck and exposed to the damp air. At the Island he was kept practically in solitary confinement, without proper food or treatment. Moreover, Dr. Bogart, his attending physician at the time of removal, was detained by force in Captain Thompson's house for several days.

The necessity for greater care in the examination of "drunk" patients than is usually observed at our hospitals is well illustrated in the case of a man who was recently found intoxicated on Broadway and arrested. At the station-house he told a story of having been stabbed in the eye with an umbrella. The wound was not regarded by the police as sufficiently serious to call for medical attendance, but the next morning his condition was such that he was sent to the New York Hospital, where he was treated for acute alcoholism and lacerated wound of the face. The next day he was transferred to Bellevue Hospital, where he improved for a number of days, but subsequently developed symptoms of cerebral inflammation and died. Autopsy showed that some instrument had been thrust through the inner angle of the eye to the base of the skull, injuring the optic nerve and fracturing the sella turcica.

The Hon. Andrew D. Smith, ex-president of Cornell University, who has just returned from an extended foreign tour, makes a comparison of Constantinople with New York, which is not very flattering to the citizens of the latter place. "Constantinople, throned upon the most magnificent site for a city on the globe," he says, "is in all its recent civic buildings and its general municipal system vile. I know of but one other city which can be classed with it in these respects. As I went through its muddy, badly paved lower streets, saw the evidence of bad sewerage everywhere, and looked upon its tumble-down quays, it all fairly made me homesick—they resembled so strongly those of our own city of New York. As a simple matter of fact, those districts in New York, somewhat remote from the main avenues and centres, have the vilest arrangements I have ever seen in any part of the world, with the possible exception of Constantinople." That there is unfortunately a great deal of truth in these remarks, is attested by the fact that only during the past week a committee of the State Senate has been making a personal investigation of the Twenty-third and Twenty-fourth Wards, in the annexed district beyond the Harlem, and listening to complaints and evidence as to bad streets, drainage and sewerage.

The seventh congress of the American Ornithologists' Union has recently been in session at the building of the American Museum of Natural History, and the proceedings were often of considerable general interest. A number of physicians from different parts of the country were in attendance, and reports on the Migration and Geographical Distribution of Birds, and on the Anatomy of Birds, were read respectively by Dr. C. H. Merriam, Chief of the Division of Ornithology and Mammalogy in the Department of Agriculture, and Dr. Robert Shufelt, U. S. A., of Fort Wingate, New Mexico. Among other papers read was one on the Avifauna of Arizona, by Dr. E. A. Mearns, U. S. A., of Fort Snelling, Minnesota.

Last season the College of Physicians and Surgeons sustained the loss of its president, Dr. Dalton, and a number of its faculty, Drs. Sands, Sabine, and Agnew; all these distinguished members of the profession dying within a comparatively few months of each other. This season it is Bellevue College that suffers the loss of its president and founder, Dr. Isaac E. Taylor, which has followed rapidly upon the death of Professor Alexander B. Mott.

The report of the president of the trustees of the House of Rest for Consumptives, presented at the annual meeting of the board, which was held November 15, shows that one hundred and sixty-four patients have been treated in the institution during the past year, of whom eight were discharged cured and thirty-one improved. The gratifying results thus reported are due in a measure to the improved methods now employed in the treatment of phthisis, and the trustees hope soon to increase further the facilities for scientific management.

The new Christ Hospital, of Jersey City, erected under the auspices of the Abercrombie Guild of St. Matthew's Episcopal Church, was formally dedicated on the 12th of November, and on this occasion addresses were made by Bishop Starkey, of New Jersey, Bishop Quintard, of Tennessee, Governor Green, and Governor-elect Abbett. The ground and buildings cost $60,000. The hospital was founded many years ago by the late Dr. Abercrombie, rector of St. Matthew's, and the new building was greatly needed in order to carry on successfully the work thus begun.

BOSTON.

To the Editor of THE MEDICAL NEWS,

SIR: As it is the best of which there is the least heard, so let us hope it is with medicine in Boston. At all events, medicine seems to be very quiet at present and nothing of special interest has come up at the meetings.

The Medical School continues as of old, but this year is deprived of the services of Professor Bowditch, who is spending his vacation in Europe. Every seventh year the professors are given a year's leave in order that they may travel and gather facts to dispense again to the less fortunate obliged to stay at home. Dr. J. W. Warren presides over the department of physiology, while Dr. Whitney fills Dr. Bowditch's place as Dean; both are guarantees that the school will not suffer.

The laboratories contain rather more than the usual number of physicians engaged in investigating special points, from whom, doubtless, we shall hear in due time. Dr. Ernst is still continuing his study of the milk of tuberculous cows of which a preliminary notice appeared in *The American Journal of the Medical Sciences*. Besides the work being done in the laboratories of the Harvard Medical School, the writer is cognizant of a considerable amount which is being conducted privately by men whose names assure valuable results.

The amount of outside work being done is a clear sign of the useful field that awaits Sear's new laboratory for pathology and bacteriology if it ever be built and conducted on liberal principles. As yet, no start has been made on this building, which is to contain ample animal rooms, which is a great want, even teachers in the school being now forced to keep their guinea-pigs and rabbits for experimental purposes at home. The bacteriological department will offer certain peculiarities, as besides general rooms for autopsies, cultures, and the like, each worker will be provided with a small room or cell, where he can work in peace.

The two larger hospitals continue to offer a large amount of material, both surgical and medical. Perhaps the tendency of the staff of the Massachusetts General Hospital to the adoption of Brand's method in the treatment of typhoid fever may be of interest to the profession. The expense appears to be the chief stumbling-block. The City Hospital staff, on the other hand, use the antipyretics more freely, incline to the wet sheet, and are not as favorable to Brand's method.

NEWS ITEMS.

THE following letter received from Dr. Abraham Jacobi, of New York, in regard to Dr. Goodell's article in THE MEDICAL NEWS of December 7th, is of interest:

DEAR SIR: I offer twenty-five dollars as a contribution to an edition of ten thousand reprints of your article in the last number of THE MEDICAL NEWS. It is the best and probably most useful paper published in a medical journal these many years. If anything can do so, it will prevent untold cases of malpractice and numberless cases of ailing and demoralization.

Very sincerely yours, A. JACOBI.

110 WEST THIRTY-FOURTH STREET, N. Y.

Insane Asylum Burned.—The Insane Asylum of Idaho was destroyed by fire on November 25th, with the loss of eight lives.

Sir Morell Mackenzie.—It is stated that although Sir Morell Mackenzie was condemned by the Council of the Royal College of Surgeons for his publications on the case of the Emperor Frederick, at a general meeting of the body he had but one accuser.

Dr. Billings and the University of Pennsylvania.—Dr. John S. Billings has accepted the position of Medical Director of the Hospital of the University of Pennsylvania. The duties of this position have been arranged so that they will not in any way conflict with his important duties at Washington. It is understood that the Board of Trustees of the University have also in contemplation the erection of an important building for a complete School of Hygiene. It is expected that, at some future time, Dr. Billings will assume the position of Director of this department.

The Manhattan Eye and Ear Hospital.—The Manhattan Eye and Ear Hospital, of New York, has just completed its twentieth year of active work. It was opened for the reception of patients in a house hastily altered from an ordinary dwelling to the purposes of a hospital on October 15, 1869. Since then over 108,000 patients have received treatment. As a fitting memorial to the late Dr. Cornelius R. Agnew, who was the chief agent in founding the Hospital, an endowment fund is being established, and has already reached the sum of over $8000.

Dr. Northrup's Article in Scribner's Magazine.—Dr. William Perry Northrup, who wrote the articles on "Spasmodic Laryngitis," "Pseudo-membranous Laryngitis," and "Intubation," in Keating's *Cyclopædia of the Diseases of Children*, has written a very interesting article entitled "The Pardon of Ste. Anne d'Auray and other Breton Pictures," for the December issue of *Scribner's Magazine*, in which the habits of the people are portrayed in a way which carries the reader from the beginning of the article to the end without a desire to stop.

Obituary.—Dr. Rudolph Tausky, who died at the Bloomingdale Asylum, November 22d, was a man of fine natural ability and an indefatigable worker. It is supposed that excessive application to his profession unhinged his intellect, so that about four years ago in a sudden access of insanity he attempted to take his own and his wife's life. Both recovered from the pistol-shot wounds in the head, but Dr. Tausky's mind was gone, and for four years he has been in the asylum, suffering from paresis. He was a native of Bohemia and but fifty-three years old. He had had numerous hospital and dispensary positions.

An American Hospital in Persia.—The United States Minister to the court of the Shah of Persia laid, at Teheran, the corner-stone of a hospital, which has largely been promoted by American influence. An American physician of Teheran, Dr. W. W. Torrence, was the originator of the undertaking, and a portion of the funds was subscribed in this country; a larger portion was raised in Persia.

Association of American Anatomists.—The second meeting of the Association of American Anatomists will take place in the Biological Department of the University of Pennsylvania, December 26th, 27th, and 28th. The profession is cordially invited to attend the meetings.

Association of Life Insurance Directors.—Twenty medical directors of life insurance companies met in New York on December 6th, and formed a permanent organization by adopting a constitution and electing the following officers: President, J. M. Keating, of the Penn Mutual; vice-presidents, G. W. Russell, of the Aetna, and Lewis McKnight, of the Northwestern; secretary, Frank Wells, of the John Hancock; treasurer, J. W. Brannan, of the Washington. The object of the association is the promotion of medical science as applied to life insurance.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*